GRUNDIG

TVR-3805

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone Jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

CONTENTS

GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size	14 inch / 335.4mmV
			CRT Type	Normal
			Deflection	90 degree
			Magnetic Field BV/BH	+0.45G / +0.18G
		Color System		PAL
		Speaker		1Speaker
			Position	Front
			Size	1.5 x 2.5 Inch
			Impedance	8 ohm
		Sound Output	MAX	1.5 W
			10%(Typical)	1.0 W
G-2	VCR System	System		VHS Player / Recorder
		Video System		PAL
		Hi-Fi STEREO		No
		NTSC PB(PAL 60Hz)		Yes
		Deck	DECK	OVD-7
			Loading System	Front
			Motor	3
		Heads Video Head		2Head
		FM Audio Head		No
		Audio /Control		Mono /Yes
		Erase(Full Track Erase)		Yes
		Tape Speed Rec	PAL/SECAM	SP
			NTSC	-
		Play	PAL	SP
			NTSC	SP
		Fast Forward / Rewind Time (Approx.)		FF:2'05"/REW:2'05"
			with Cassette	at E-180
		Forward/Reverse	NTSC or PAL-M	SP=3x,5x
		Picture Search	PAL or SECAM	SP=5x,7x
		Frame Advance		1/10
		Slow Speed		1/5~1/30
G-3	Tuning System	Broadcasting System		CCIR + Italy System B/G
		Tuner and Receive CH	System	1Tuner
			Destination	Oscar(W/HYPER)
			Tuning System	F-Synth
			Input Impedance	VHF/UHF 75 ohm
			CH Coverage	E2~E4, X~Z+2, S1~S10, E5~E12,S11~S41,E21~E69
		Intermediate Frequency	Picture(FP)	38.9MHz
			Sound(FS)	33.4MHz
			FP-FS	5.5MHZ
		Preset CH		80CH
		Stereo/Dual TV Sound		No
		Tuner Sound Muting		Yes
G-4	Signal	Video Signal	Input Level	1 V p-p/75 ohm
			Output Level	1 V p-p/75 ohm
			S/N Ratio (Weighted)	53 dB
			Horizontal Resolution at SP Mode	240 Lines
		Audio Signal	Input Level	-3.8dBm/50Kohm
			Output Level	-3.8dBm/1Kohm
			S/N Ratio at SP (Weighted)	42 dB
			Harmonic Distortion at SP (1KHz) Typical	1.5 %
			Frequency Response at SP	100Hz ~10kHz
			at LP	-
			at SLP	-
		Hi-Fi Audio Signal	Dynamic Range : More than	-
			Wow And Flutter : Less than	-
			Channel Separation : More than	-
			Harmonic Distortion : Less than	-
G-5	Power	Power Source	AC	230V 50Hz
			DC	-
		Power Consumption	at AC	50 W at 230 V 50 Hz
			at DC	-
			Stand by (at AC)	8 W at 230 V 50 Hz
			Per Year	-
		Protector	Power Fuse	Yes
			Dew Sensor	No
G-6	Regulation		Safety	CE
			Radiation	CE
			X-Radiation	-
G-7	Temperature		Operation	+5°C ~ +40°C
			Storage	-20°C ~ +60°C
G-8	Operating Humidity			Less then 80% RH

GENERAL SPECIFICATIONS

G-9	On Screen Display	Menu			Yes
		Menu	Type		Character
		ATS			No
		Timer Rec Set			Yes
		Channel Setup			Yes
			Auto Tuning		Yes
			Ch Mapping		No
			Ch Tuning		Yes
			Ch Allocation		Yes
		TV Setup			Yes
			On/Off Timer Set		Yes
			Picture		Yes
			Audio		No
		VCR Setup			No
			Auto Repeat On/Off		Yes
			System Select		No
			Scene Repeat		No
		System Setup			Yes
			Clock Set		Yes (Calendar 24h)
			Language		Yes
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry			No
		Stereo/Audio Output			No
			Bilingal		No
			NICAM		No
		Clock/Date			Yes
		CH/AV			Yes
		Tape Counter(Linear Counter)			Yes
		Tape Speed			No
		Sleep Time			Yes
		Control Level	Volume		Yes
			Bright/Contrast/Sharpness/Color		Yes
			Tint		No
			Bass/Treble/Balance		No
			Manual Tracking		Yes
		Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark)			Yes
		Auto Tracking/Manual Tracking			Yes
		S-Repeat/SR-R/SR-PLAY			No
		Index			Yes
		Mute			Yes
		Hi-Fi			No
		Repeat			Yes
		Zero Return			No
		Dew			No
G-10	OSD Language	OSD Language Setting			Eng Ger Fre Spa Ita Ita
G-11	Clock,Timer and Timer Back-up	Calendar			1990/1/1 ~ 2081/12/31
		Timer Events			8 prog/ 1 month
		One Touch Recording Max Time			SP 5 Hours
		OTPB Valid Time			-
		Sleep Timer	Max Time		120 min.
			Step		10 min.
		On/Off Timer	Program(On Tim / Off Tim)		1 prog.
		Auto Shut Off	No Signal		15 min.
			No Operation		- min.
		Timer Back-up (at Power Off Mode)			30 min.
G-12	Remote Control	Unit			RC-CH
		Glow in Dark Remocon			No
		Power Source	Voltage(D.C)		3V
			UM size x pcs		UM-4 x 2 pcs
		Total Keys			36 Keys
		Keys	Power		Yes
			1		Yes
			2		Yes
			3		Yes
			4		Yes
			5		Yes
			6		Yes
			7		Yes
			8		Yes
			9		Yes
			0/AV		Yes
			CH/Tr Up		No
			CH/Tr Up/Page Up		Yes
			CH/Tr Down		No
			CH/Tr Down /Page Down		Yes
			Volume Up		Yes
			Volume Down		Yes

GENERAL SPECIFICATIONS

			Play/Up		No
			Play/Up/Slow		Yes
			F.Fwd/Right		Yes
			Rew/Left		Yes
			Pause/Still		Yes
			Pause		No
			Stop/Down		Yes
			Rec/OTR		Yes
			Eject		Yes
			Counter Reset		Yes
			Speed		No
			Timer Rec		Yes
			TV Monitor		Yes
			TV Monitor /Rec Monitor		No
			Program		Yes
			Program /V+		No
			Auto Tracking		No.
			Auto Tracking /Reveal		Yes
			Menu		Yes
			Enter		No.
			Enter/Hold		Yes
			Cancel/Ch Skip		No.
			Cancel/Ch Skip/F-T-B		Yes
			Index		No.
			Index /Sub Page		Yes
			Call		Yes
			Text/Mix/TV		Yes
			Sleep Timer		Yes
			Mute		Yes
			Zero Return		Yes
			CM Skip		No
			OTPB		No
			END Call		No
			Red		No
			Cyan		No
			Green		No
			Yellow		No
			Audio Select		No
G-13	Features	Auto Head Cleaning			Yes
		Auto Tracking			Yes
		HQ (VHS Standard High Quality)			Yes
		Auto Power On, Auto Play, Auto Rewind, Auto Eject			Yes
		Auto Shut Off			Yes
		Auto Repeat			Yes
		VIDEO PLUS+(SHOWVIEW,G-CODE)			No
		CH Auto Set-Up/Auto Clock			No
		Forward / Reverse Picture Search			Yes
		One Touch Playback			No
		Auto Tuning			Yes
		Anti-Theft			No
		End Call			No
		Index Search			Yes
		SQPB			No
		CATV			No
		CM Skip(30sec x 6 Times)			No
		Comb Filter			No
		TText			Yes
				Text type	UNI Text
		Scene Repeat			No
		Hotel Lock			No
		TV Monitor			Yes
		Choke Coil			No
G-14	Accessories	Owner's Manual	Language		Italian
			w/Guarantee Card		No.
		Remote Control Unit			Yes
		Rod Antenna			No
			Poles		-
			Terminal		-
			w/300 ohm to 75 ohm Antenna Adapter		-
		Loop Antenna			No
			Terminal		-
		U/V Mixer			No
		DC Car Cord (Center+)			No
		Guarantee Card			Yes
		Warning Sheet			No
		Circuit Diagram			No
		Antenna Change Plug			No

GENERAL SPECIFICATIONS

		Service Facility List			No
		Important Safeguard			No
		Dew/AHC Caution Sheet			No
		AC Plug Adapter			No
		Quick Set-up Sheet			No
		Battery			Yes
				UM size x pcs	UM-4 x 2 pcs
		AC Cord			No
		AV Cord (2Pin-1Pin)			No
		21pin-RCA Cable			No
		Registration Card			No
		PTB Sheet			No
		Anti-Theft Sheet			No
		Euro Warranty Information Sheet			No
G-15	Interface	Switch	Front	Power	Yes
				Play	Yes
				Pause/Still	No
				System Select	No
				One Touch Playback	No
				Channel Up	Yes
				Channel Down	Yes
				F.FWD/Cue	Yes
				Eject/Stop	Yes
				Main Power SW	Yes
				Volume Up	Yes
				Volume Down	Yes
				Rew/Rev	Yes
				Rec/OTR	Yes
			Rear	Main Power SW	No
		Indicator		Standby	Red
				Rec/OTR	Red
				T-Rec	Red
				On Timer	No
				CS	No
		Key Light up		Rec/OTR	No
				One Touch Playback	No
				Play	No
		Terminals	Front	Video Input	RCA x1
				Audio Input	RCA x1
				Other Terminal	Head Phone(Stereo & Mono, 3.5mm)
			Rear	Video Input	No
				Audio Input	No
				Video Output	No
				Audio Output	No
				Euro Scart	1-SCART
				Diversity	No
				Ext Speaker	No
				DC Jack 12V(Center +)	No
				VHF/UHF Antenna Input	DIN type
				AC Inlet	No
G-16	Set Size			Approx. W x D x H (mm)	362 x 378.5 x 382
G-17	Weight			Net (Approx.)	11.0 kg (- lbs)
				Gross (Approx.)	12.5 kg (- lbs)
G-18	Carton		Master Carton		No
				Content	-
				Material	-
				Dimensions W x D x H(mm)	-
				Description of Origin	-
			Gift Box		Yes
				Material	Double/Brown
				Dimensions W x D x H(mm)	423 x 447 x 443
				Design	As per Buyer's
				Description of Origin	No
			Drop Test	Natural Dropping At	1 Corner / 3 Edges / 6 Surfaces
				Height (cm)	62
			Container Stuffing(40' container)		700 Sets
G-19	Cabinet Material			Cabinet Front	PS 94HB
				Cabinet Rear	PS 94HB
				Jack Panel	PS 94V2

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 6 screws ①.
2. Remove the AC cord from the AC cord hook ②.
3. Remove the Back Cabinet in the direction of arrow.

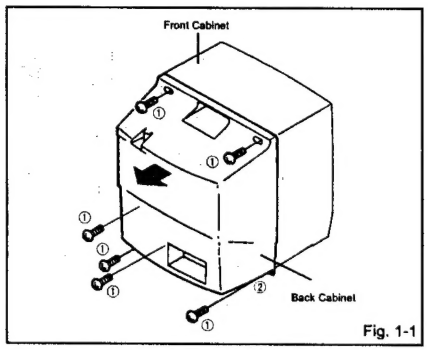


Fig. 1-1

1-2: CRT PCB (Refer to Fig. 1-2)

CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap.
   (Refer to REMOVAL OF ANODE CAP)
2. Remove the CRT PCB in the direction of arrow.

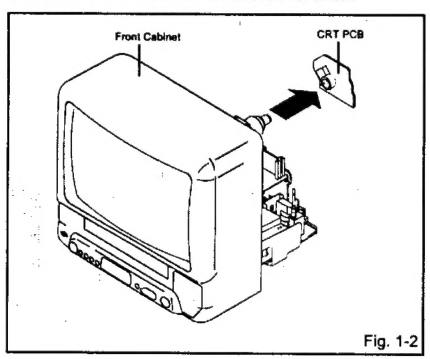


Fig. 1-2

1-3: TV/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
   (CP351, CP757, CP401, CP501 and CP502).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.

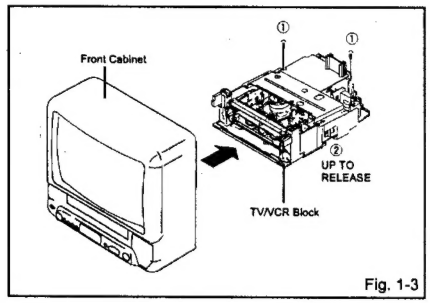


Fig. 1-3

1-4: POWER PCB (Refer to Fig. 1-4)

1. Remove the 3 screws ①.
2. Disconnect the following connectors:
   (CP401A and CP851A).
3. Remove the Power PCB in the direction of arrow.

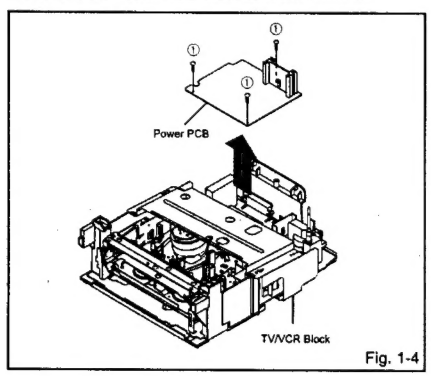


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

1-5: DECK SHIELD PLATE (Refer to Fig. 1-5)

1. Remove the 2 screws ①.
2. Remove the Deck Shield Plate in the direction of arrow (A).
3. Remove the screw ②.
4. Remove the Bottom Shield Plate in the direction of arrow (B).

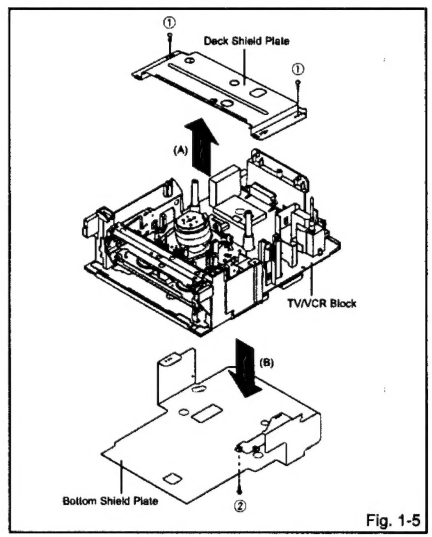


Fig. 1-5

1-6: DECK CHASSIS (Refer to Fig. 1-6)

1. Remove the screw ①.
2. Remove the Cover Light Plate in the direction of arrow (A).
3. Remove the 3 screws ②.
4. Disconnect the following connectors:
   (CP1001, CP4001, CP4004 and CP4005).
5. Remove the Deck Chassis in the direction of arrow (B).

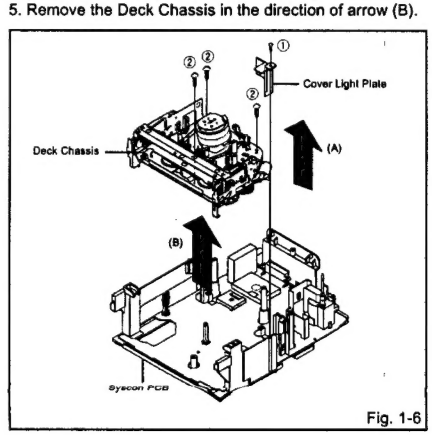


Fig. 1-6

1-7: JACK PLATE AND SYSCON PCB (Refer to Fig. 1-7)

1. Remove the screw ①.
2. Remove the 2 screws ②.
3. Remove the Syscon PCB in the direction of arrow.

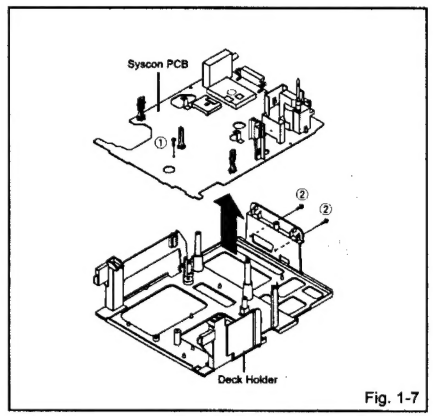


Fig. 1-7

2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

1. After the installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.

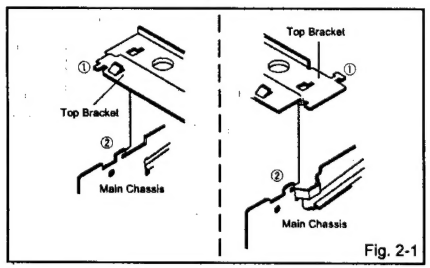


Fig. 2-1

2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

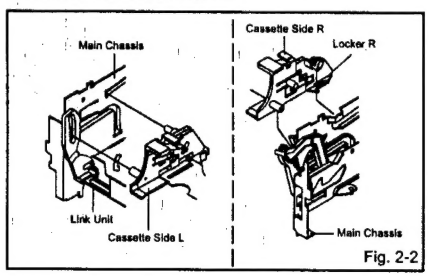


Fig. 2-2

2-3: CASSETTE SIDE L/R (Refer to Fig. 2-3-A)

1. Remove the Locker Spring.
2. Unlock the 4 supports ① and then remove the Cassette Side L/R.
3. Unlock the support ② and then remove the Locker R.

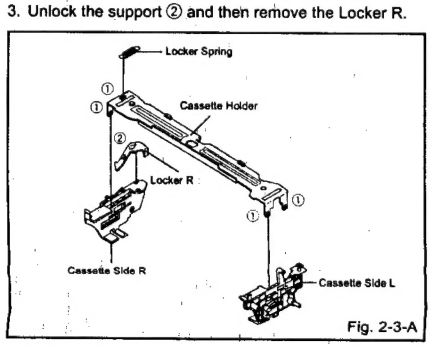


Fig. 2-3-A

NOTE

1. In case of the Locker R installation, check if the two positions of Fig.2-3-B are correctly locked.
2. When you install the Cassette Side R, be sure to move the Locker R after installing.

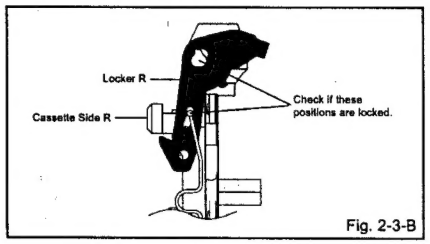


Fig. 2-3-B

2-4: LINK UNIT (Refer to Fig. 2-4)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.

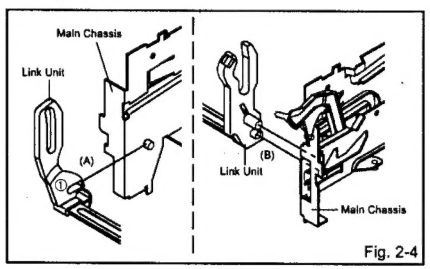


Fig. 2-4

2-5: LINK LEVER/FLAP LEVER (Refer to Fig. 2-5)

1. Remove the Link Lever.
2. Remove the Flap Lever.

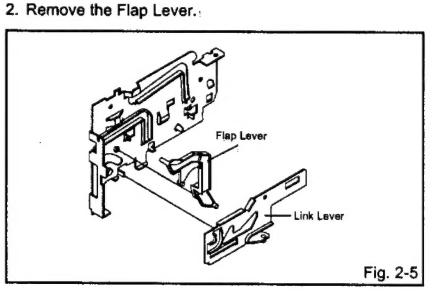


Fig. 2-5

2-6: LOADING MOTOR/WORM (Refer to Fig. 2-6-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.

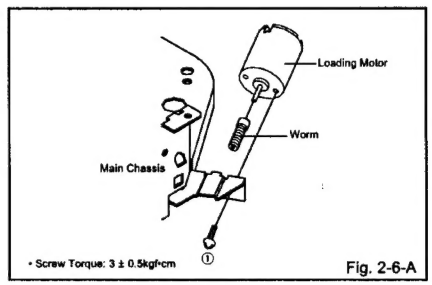


Fig. 2-6-A

NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-6-B is correct.

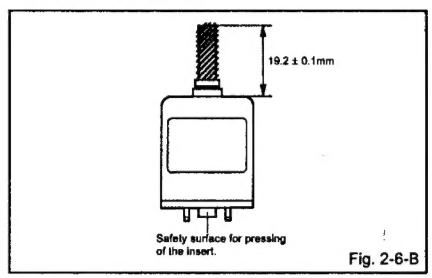


Fig. 2-6-B

2-7: TENSION ASS'Y (Refer to Fig. 2-7-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-7-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.

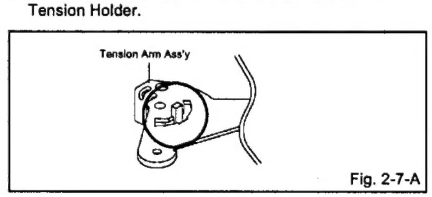


Fig. 2-7-A

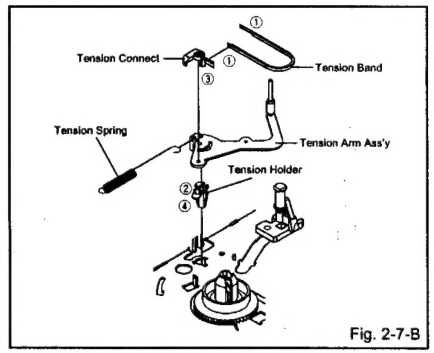


Fig. 2-7-B

NOTE

1. In case of the Tension Band installation, note the direction of the installation. **(Refer to Fig. 2-7-C)**
2. In case of the Tension Band installation, install correctly as Fig. 2-7-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-7-E.

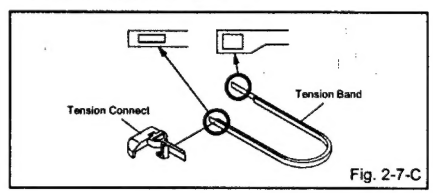


Fig. 2-7-C

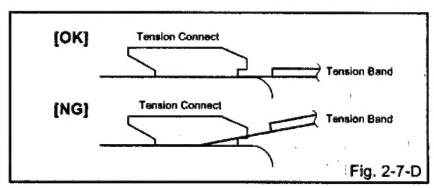


Fig. 2-7-D

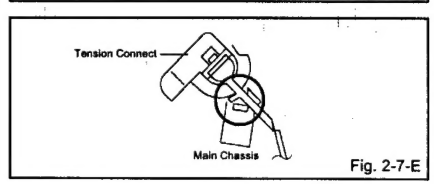


Fig. 2-7-E

2-8: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-8-A)

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.

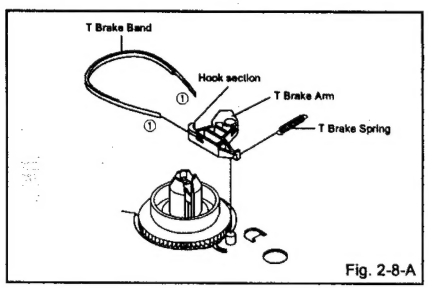


Fig. 2-8-A

NOTE

1. In case of the T Brake Band installation, install correctly as Fig. 2-8-B.

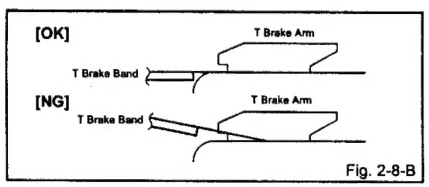


Fig. 2-8-B

2-9: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-9-A)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-9-A)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and grease it (MG-33). (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

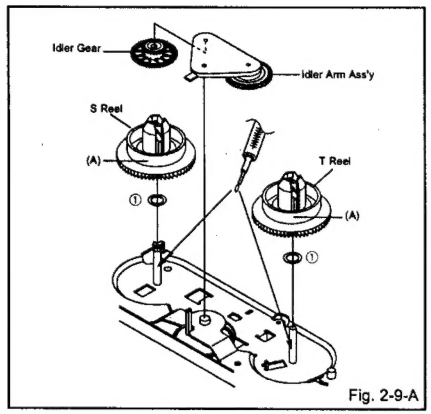


Fig. 2-9-A

NOTE

1. In case of the S Reel and T Reel installation, check if the correct parts are installed. **(Refer to Fig. 2-9-B)**
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-9-C.

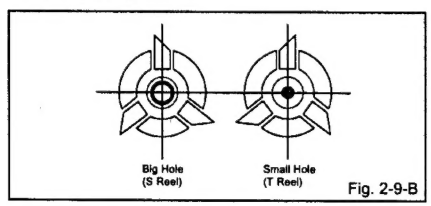


Fig. 2-9-B

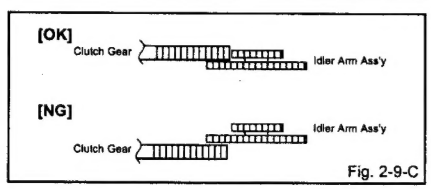


Fig. 2-9-C

2-10: CASSETTE OPENER/PINCH ROLLER BLOCK/ P5 ARM ASS'Y (Refer to Fig. 2-10-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'y.

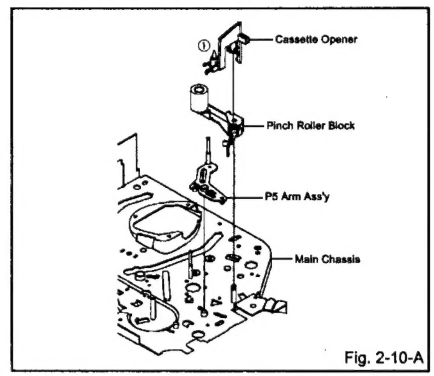


Fig. 2-10-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-10-B.

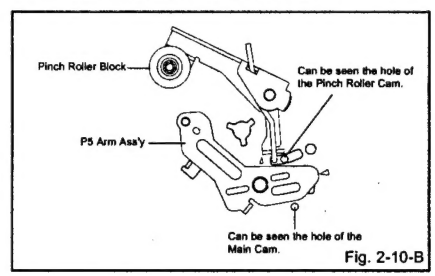


Fig. 2-10-B

2-11: A/C HEAD (Refer to Fig. 2-11-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-11-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

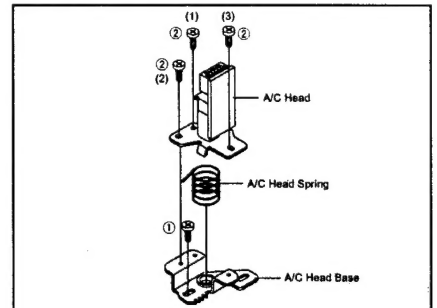


Fig. 2-11-A

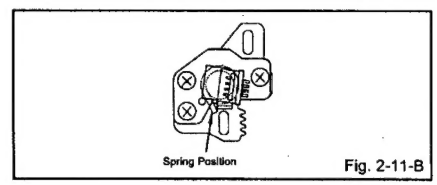


Fig. 2-11-B

2-12: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-12)

1. Remove the screw ①.
2. Remove the FE Head.

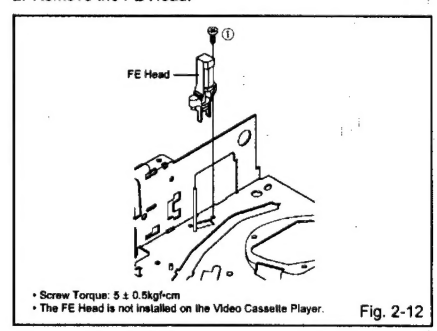


Fig. 2-12

DISASSEMBLY INSTRUCTIONS

2-13: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-13)

1. Disconnect the following connector: (CD2001)
2. Remove the 3 screws ①.
3. Remove the Cylinder Unit Ass'y.

NOTE

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

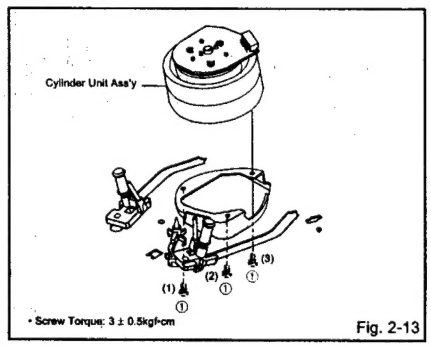


Fig. 2-13

2-14: CAPSTAN DD UNIT (Refer to Fig. 2-14)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.

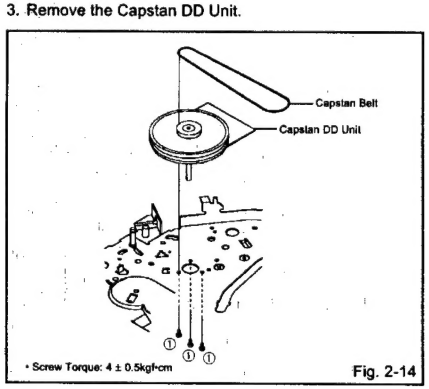


Fig. 2-14

2-15: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-15-A)

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.

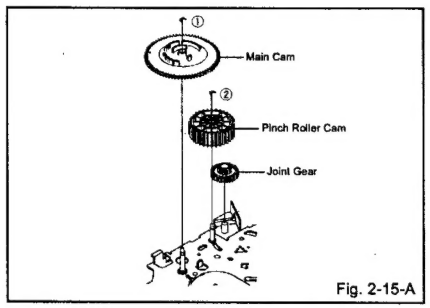


Fig. 2-15-A

NOTE

1. In case of the Pinch Roller Cam and Main Cam installation, install them as the circled section of Fig. 2-15-B so that the each markers are met. **(Refer to Fig. 2-15-B)**

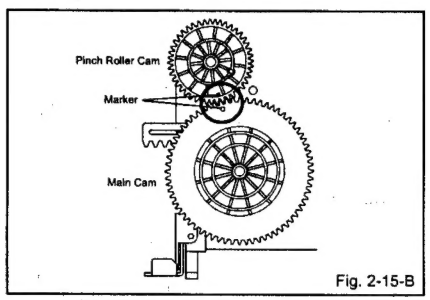


Fig. 2-15-B

2-16: LOADING GEAR S/T UNIT (Refer to Fig. 2-16-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.

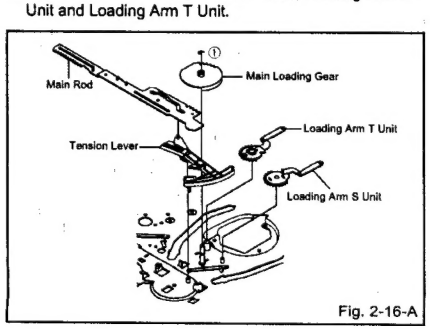


Fig. 2-16-A

DISASSEMBLY INSTRUCTIONS

NOTE

1. When you install the Loading Arm S Unit, Loading Arm T Unit and Main Loading Gear, align each marker. **(Refer to Fig. 2-16-B)**

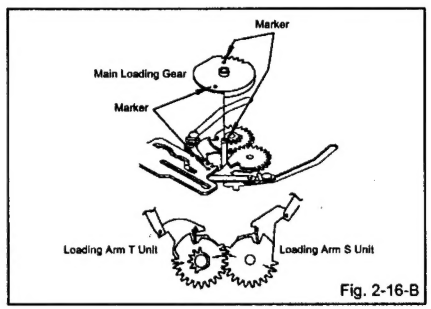


Fig. 2-16-B

2-17: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/ CLUTCH GEAR (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.

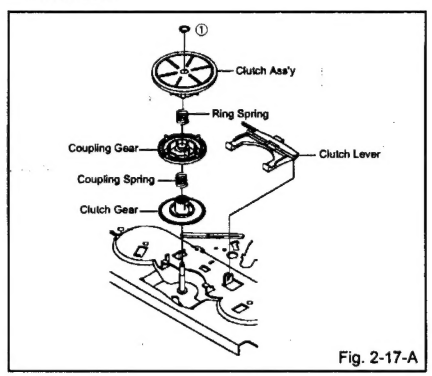


Fig. 2-17-A

NOTE

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. **(Refer to Fig. 2-17-B)**

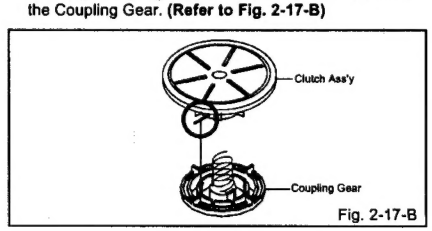


Fig. 2-17-B

2-18: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP (Refer to Fig. 2-18-A)

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S Unit and Inclined Base T Unit.

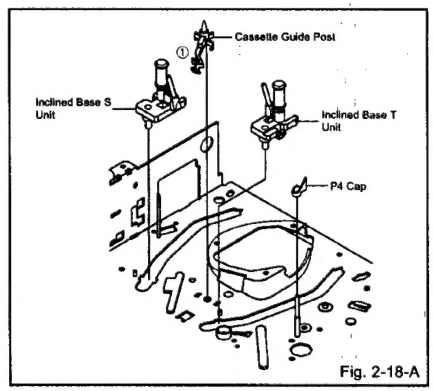


Fig. 2-18-A

NOTE

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-18-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-18-C.

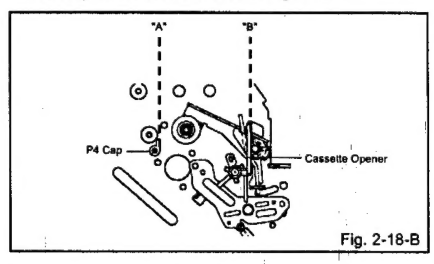


Fig. 2-18-B

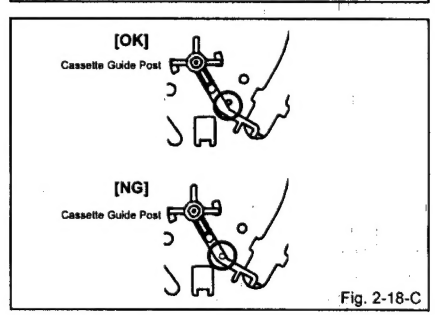


Fig. 2-18-C

3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 3-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

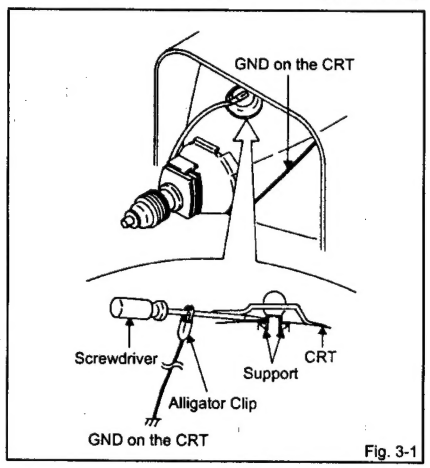


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 3-2.)**

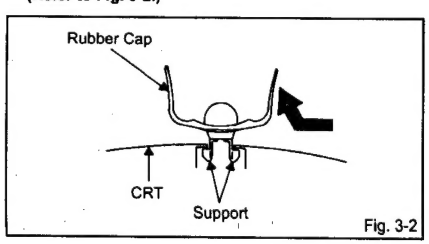


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 3-3.)**

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

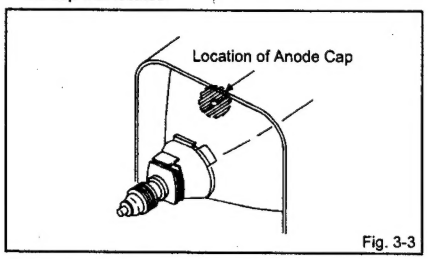


Fig. 3-3

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 3-4.)**

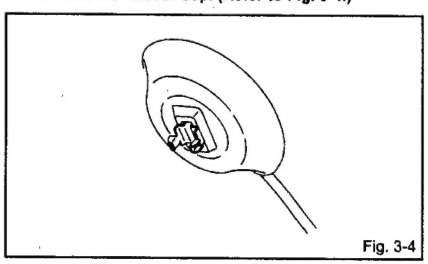


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 3-5.**

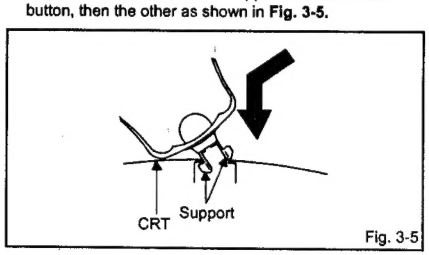


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 4-1.)**

NOTE

Masking is carried out on all the parts located within 10 mm distance from IC leads.

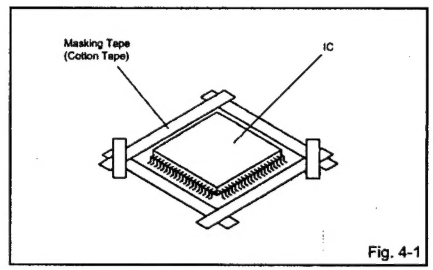


Fig. 4-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 4-2.)**

NOTE

Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.

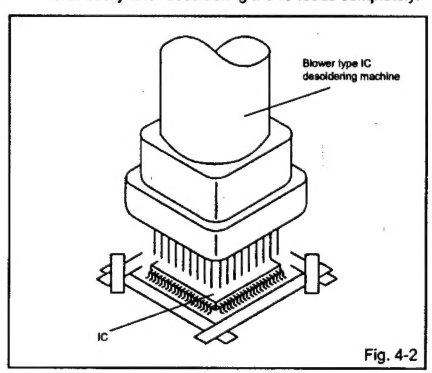


Fig. 4-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 4-3.)**

NOTE

Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

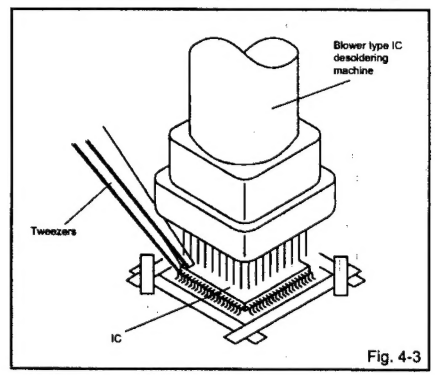


Fig. 4-3

4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 4-4.)**

NOTE

Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

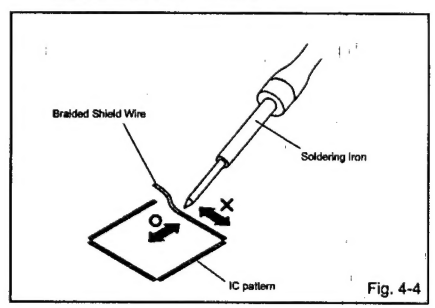


Fig. 4-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 4-5.)**

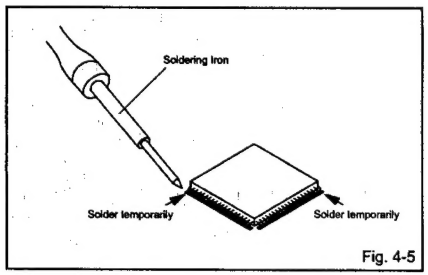


Fig. 4-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 4-6.)**

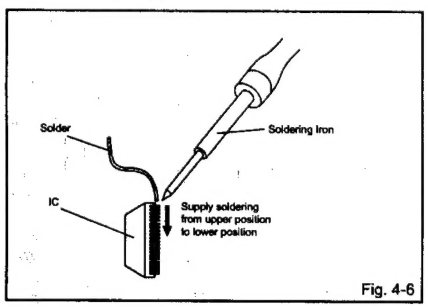


Fig. 4-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 4-7.)**

NOTE

Do not absorb the solder to excess.

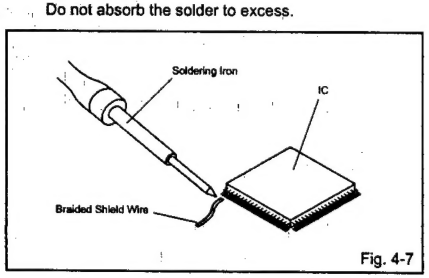


Fig. 4-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 4-8.)**

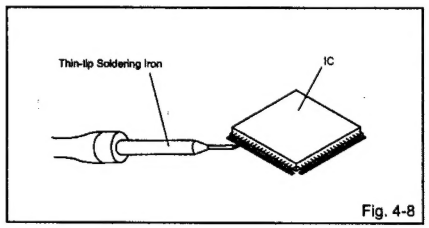


Fig. 4-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

KEY TO ABBREVIATIONS

A	A/C	:	Audio/Control
	ACC	:	Automatic Color Control
	AE	:	Audio Erase
	AFC	:	Automatic Frequency ContZrol
	AFT	:	Automatic Fine Tuning
	AFT DET	:	Automatic Fine Tuning Detect
	AGC	:	Automatic Gain Control
	AMP	:	Amplifier
	ANT	:	Antenna
	A.PB	:	Audio Playback
	APC	:	Automatic Phase Control
	ASS'Y	:	Assembly
	AT	:	All Time
	AUTO	:	Automatic
	A/V	:	Audio/Video
B	BGP	:	Burst Gate Pulse
	BOT	:	Beginning of Tape
	BPF	:	Bandpass Filter
	BRAKE SOL	:	Brake Solenoid
	BUFF	:	Buffer
	B/W	:	Black and White
C	C	:	Capacitance, Collector
	CASE	:	Cassette
	CAP	:	Capstan
	CARR	:	Carrier
	CH	:	Channel
	CLK	:	Clock
	CLOCK (SY-SE)	:	Clock (Syscon to Servo)
	COMB	:	Combination, Comb Filter
	CONV	:	Converter
	CPM	:	Capstan Motor
	CTL	:	Control
	CYL	:	Cylinder
	CYL-M	:	Cylinder-Motor
	CYL SENS	:	Cylinder-Sensor
D	DATA (SY-CE)	:	Data (Syscon to Servo)
	dB	:	Decibel
	DC	:	Direct Current
	DD Unit	:	Direct Drive Motor Unit
	DEMOD	:	Demodulator
	DET	:	Detector
	DEV	:	Deviation
E	E	:	Emitter
	EF	:	Emitter Follower
	EMPH	:	Emphasis
	ENC	:	Encoder
	ENV	:	Envelope
	EOT	:	End of Tape
	EQ	:	Equalizer
	EXT	:	External
F	F	:	Fuse
	FBC	:	Feed Back Clamp
	FE	:	Full Erase
	FF	:	Fast Forward, Flipflop
	FG	:	Frequency Generator
	FL SW	:	Front Loading Switch
	FM	:	Frequency Modulation
	FSC	:	Frequency Sub Carrier
	FWD	:	Forward
G	GEN	:	Generator
	GND	:	Ground
H	H.P.F	:	High Pass Filter
	H.SW	:	Head Switch
	Hz	:	Hertz
I	IC	:	Integrated Circuit
	IF	:	Intermediate Frequency
	IND	:	Indicator
	INV	:	Inverter
K	KIL	:	Killer
L	L	:	Left
	LED	:	Light Emitting Diode
	LIMIT AMP	:	Limiter Amplifier
	LM, LDM	:	Loading Motor
	LP	:	Long Play
	L.P.F	:	Low Pass Filter
	LUMI.	:	Luminance
M	M	:	Motor
	MAX	:	Maximum
	MINI	:	Minimum
	MIX	:	Mixer, mixing
	MM	:	Monostable Multivibrator
	MOD	:	Modulator, Modulation
	MPX	:	Multiplexer, Multiplex
	MS SW	:	Mecha State Switch
N	NC	:	Non Connection
	NR	:	Noise Reduction
O	OSC	:	Oscillator
	OPE	:	Operation
P	PB	:	Playback
	PB CTL	:	Playback Control
	PB-C	:	Playback-Chrominance
	PB-Y	:	Playback-Luminance
	PCB	:	Printed Circuit Board
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
R	R	:	Right
	REC	:	Recording
	REC-C	:	Recording-Chrominance
	REC-Y	:	Recording-Luminance
	REEL BRK	:	Reel Brake
	REEL S	:	Reel Sensor
	REF	:	Reference
	REG	:	Regulated, Regulator
	REW	:	Rewind
	REV, RVS	:	Reverse
	RF	:	Radio Frequency
	RMC	:	Remote Control
	RY	:	Relay
S	S. CLK	:	Serial Clock
	S. COM	:	Sensor Common
	S. DATA	:	Serial Data
	SEG	:	Segment
	SEL	:	Select, Selector
	SENS	:	Sensor
	SER	:	Search Mode
	SI	:	Serial Input
	SIF	:	Sound Intermediate Frequency
	SO	:	Serial Output
	SOL	:	Solenoid
	SP	:	Standard Play
	STB	:	Serial Strobe
	SW	:	Switch

KEY TO ABBREVIATIONS

S	SYNC	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	TR	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	UNREG	:	Unregulated
V	V	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	X'TAL	:	Crystal
Y	Y/C	:	Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter SERVICE MODE, Unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key for more than 2 seconds.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

Set Key	Remocon Key	Operations
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	7	Releasing of PROTECTION PASSWORD.
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Time / Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	■	■	
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	■	■	■	■ ●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

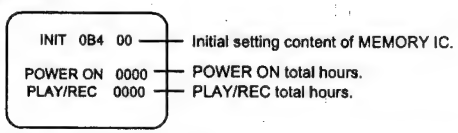
■ : Clean
● : Replace

CONFIRMATION OF HOURS USED

POWER ON total hours and PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

NOTE: The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the Channel button **(6)** on the remote control for more than 2 seconds.
3. After the confirmation of using hours, turn off the power.



(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

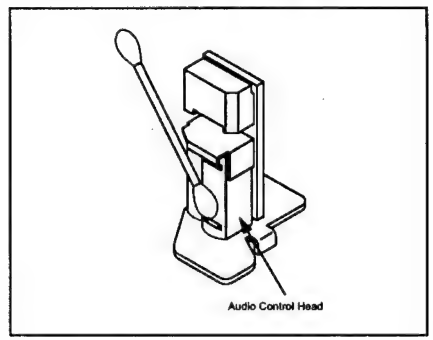
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

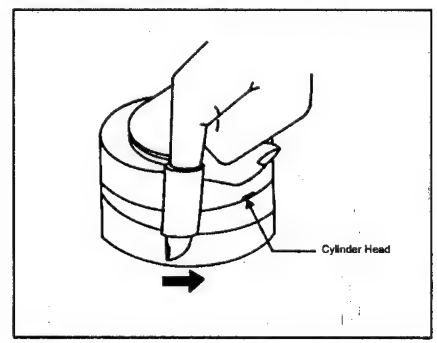
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
0B0	---	---	---	---	00	05	30	00	C0	8C	00	ED	C0	E1	81	02
0C0	00	27	98	A3	00	05	63	65	66	47	1B	3B	32	17	19	1B
0D0	3A	0F	4B	20	44	63	6B	65	64	EA	00	F5	77	50	68	5F
0E0	0F	00	11	F3	5F	0F	30	05	F3	60	99	B2	9A	97	8C	B2
0F0	A0	C4	20	08	BF	10	00	00	00	00	00	00	00	00	00	00
100	27	03	07	15	F3	00	23	42	20	11	F0	02	09	00	82	10
110	00	07	04	00	40	20	20	00	00	40	00	00	00	00	00	00
120	25	27	29	2B	2D	2F	31	33	35	37	3A	3D	40	43	46	49
130	4C	4F	52	55	57	59	5B	5D	5F	61	63	65	67	69	6B	6D
140	6F	71	73	76	79	7C	7F	82	85	88	8B	8E	91	94	97	9A
150	9D	A0	A5	AA	AF	B4	B9	BE	C3	C8	CD	D2	D9	E1	F0	FF

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

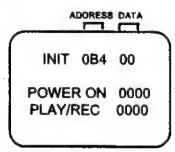
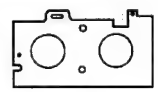
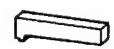


Fig. 1

3. ADDRESS is now selected and should "blink". Using the PLAY or STOP button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using PLAY or STOP button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

(For 2 head 1 speed model, 4 head model) VHS Alignment Tape JG001E (VP$_1$S-LI6^3) JG001F (VP$_1$S-CO1^3) JG001R (VP$_1$S-LI6^{3}H) JG001U (VP$_1$S-X6^3) 	**(For 2 head 2 speed model)** VHS Alignment Tape JG001C (VP$_2$S-LI6^3) JG001D (VP$_2$S-CO1^3) JG001V (VP$_2$S-X6^3) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable 	Tentelometer 		

Ref. No.	Part No.	Parts Name	Remarks
JG001E	APJG001E00	VHS Alignment Tape	Monoscope, 6KHz **(For 2 head 1 speed model, 4 head model)**
JG001F	APJG001F00	VHS Alignment Tape	Color Bar, 1KHz **(For 2 head 1 speed model, 4 head model)**
JG001R	APJG001R00	VHS Alignment Tape	Hi-Fi Audio **(For HI-FI model)**
JG001U	APJG001U00	VHS Alignment Tape	X Value Adjustment **(For 2 head 1 speed model, 4 head model)**
JG001C	APJG001C00	VHS Alignment Tape	Monoscope, 6KHz **(For 2 head 2 speed model)**
JG001D	APJG001D00	VHS Alignment Tape	Color Bar, 1KHz **(For 2 head 2 speed model)**
JG001V	APJG001V00	VHS Alignment Tape	X Value Adjustment **(For 2 head 2 speed model)**
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG005	APJG005000	Post Adjustment Screwdriver	Guide Roller Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG100A	APJG100A00	Torque Tape (VHT-063)	Playback Torque, Back Tension Torque During Playback
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Unplug the connector CP351 and CP757 then remove the TV/VCR Block from the set.
2. Remove the Operation PCB from the set, then connect it with the Syscon PCB. If necessary, connect CD351.
3. Short circuit between **TP1001** and **Ground** with the cable JG154. **(Refer to MAJOR COMPONENTS LOCATION GUIDE)**
4. The EOT, BOT and Reel Sensor do not work at this moment. At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between **TP1001** and **GND**. **(Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE)** In this condition the BOT/EOT/Reel Sensor will not function.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane **(JG022)** and reel disk height adjustment jig **(JG024A)** on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A.**
3. While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig **(JG024A)** and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to 10(+2, -0)mm.
4. Adjust the other reel in the same way.

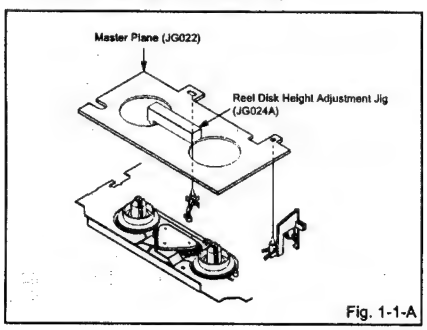


Fig. 1-1-A

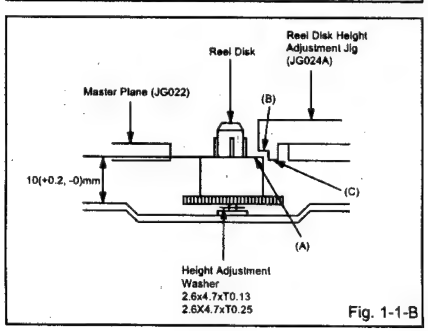


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the adjusting parts for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

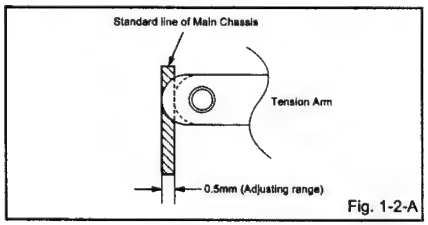


Fig. 1-2-A

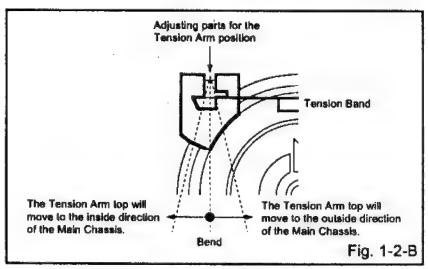


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (E-180) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE **(JG100A)**

1. After confirmation and adjustment of Tension Post position **(Refer to Item 1-2)**, load the cassette type torque tape **(JG100A)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 50~90gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

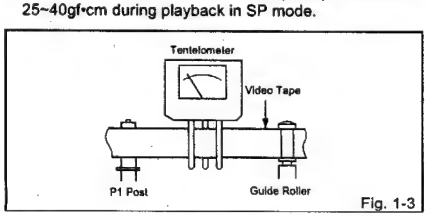


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Set to the Picture Search (Rewind) mode. **(Refer to Fig.1-4-B)**
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A.**
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Turn the Torque Gauge **(JG002F)** clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A.**
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge **(JG002E)** and Adapter **(JG002B)** on the T reel. Turn the Torque Gauge **(JG002E)** counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.

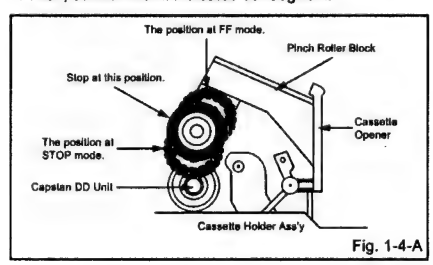


Fig. 1-4-A

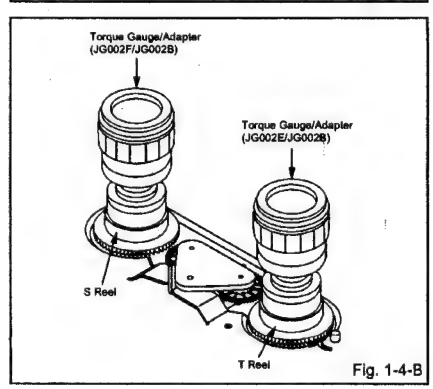


Fig. 1-4-B

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y T Reel side: T Reel/T Brake Band//T Brake Spring/T Brake Arm

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape **(JG001C or JG001E). (Refer to SERVICING FIXTURE AND TOOLS)**
2. Connect CH-1 of the oscilloscope to **TP4002 (Envelope)** and CH-2 to **TP4001 (SW Pulse)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Adjusting Driver **(JG005)** slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. **(Refer to the ELECTRICAL ADJUSTMENTS)**

NOTE

After adjustment, confirm and adjust A/C head. **(Refer to Item 2-2)**

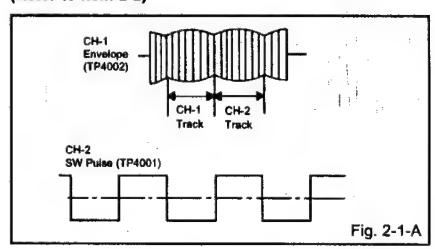


Fig. 2-1-A

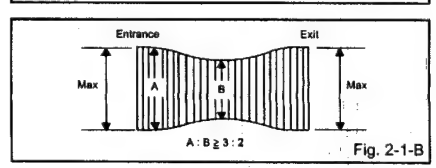


Fig. 2-1-B

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/ CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape **(JG001C or JG001E). (Refer to SERVICING FIXTURE AND TOOLS)**
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A.**
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C.**
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

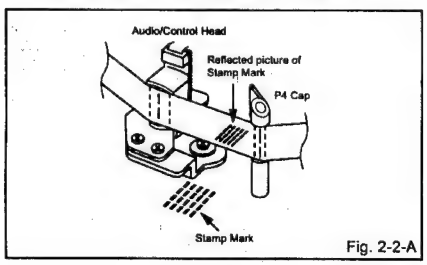


Fig. 2-2-A

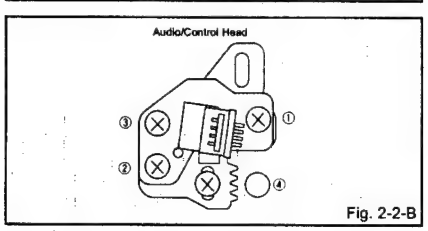


Fig. 2-2-B

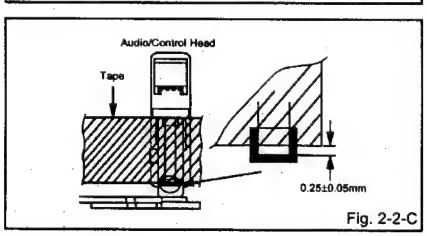


Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to Item 1-2)**
3. Adjust the Guide Roller. **(Refer to Item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to Item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP4001**, CH-2 to **TP4002** and CH-3 to **HOT side of Audio Out Jack.**
6. Playback the VHS Alignment Tape **(JG001U or JG001V). (Refer to SERVICING FIXTURE AND TOOLS)**
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B.** Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3.**

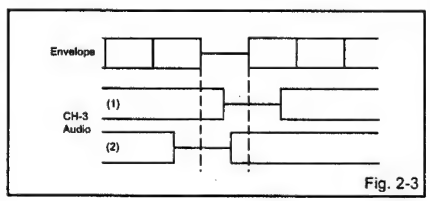
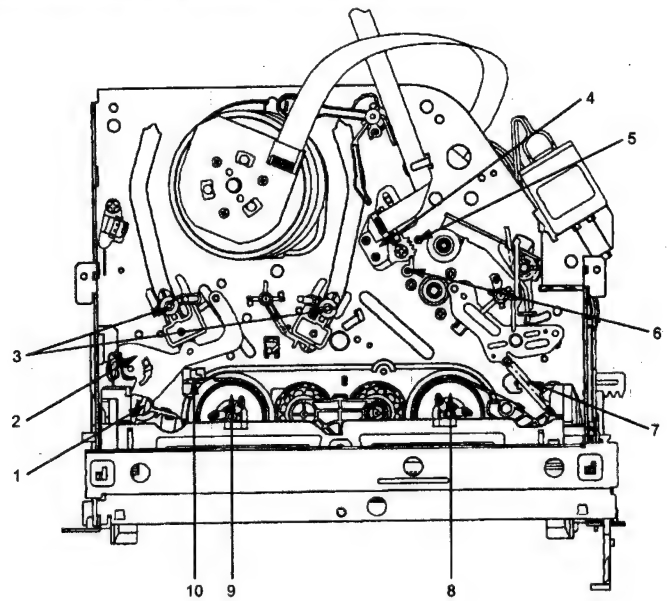


Fig. 2-3

2-4: CONFIRM HI-FI AUDIO (Hi-Fi model only)

1. Connect CH-1 of the oscilloscope to **TP4002** and CH-2 to the **HI-FI Audio Out Jack.**
2. Playback the VHS Alignment Tape **(JG001R). (Refer to SERVICING FIXTURE AND TOOLS)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
6. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
7. If the difference are more than 3 steps, set the X Value adjustment driver **(JG153)** to ④ of **Fig. 2-2-B.** Change the X Value and adjust it so that the value becomes within 2 steps.

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Connect
2. Tension Arm
3. Guide Roller
4. Audio/Control Head
5. X value adjustment driver hole
6. P4 Post
7. T Brake Spring
8. T Reel
9. S Reel
10. Adjusting parts for the Tension Arm position

ELECTRICAL ADJUSTMENTS

1. ADJUSTMENT PROCEDURE

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

When replacing IC's or transistors, use only specified silicon grease **(YG6260M)**.
(To prevent the damage to IC's and transistors.)

On-Screen Display Adjustment

1. Unplug the AC plug for more than 30 minutes to set the clock to the non-setting state. (To release the Back-Up immediately, take the short circuit between **C1003** and **GND** at the Power Off.) Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the channel button **(9)** on the remote control for more than 2 seconds to display adjustment mode on the screen as shown in **Fig. 1-1**.

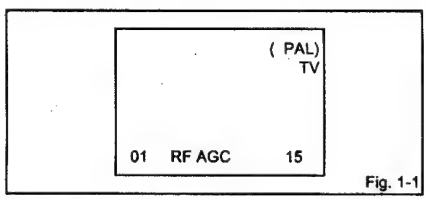


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2.**
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	CUT OFF	20	CONTRAST CENT
01	RF AGC	21	CONTRAST MAX
02	AGC GAIN	22	CONTRAST MIN
03	R DRIVE	23	COLOR CENT
04	R CUTOFF	24	COLOR MAX
05	G DRIVE	25	COLOR MIN
06	G CUTOFF	26	TINT
07	B DRIVE	27	SHARP
08	H POSI	28	M R CUT OFF
09	V POSI	29	M G CUT OFF
10	---	30	M B CUT OFF
11	V SIZE	31	H POS OSD
12	---	32	---
13	VCO COARSE	33	---
14	VCO FINE	34	---
15	VCO COARSE L1	35	CVBS OUT
16	VCO FINE L1	36	APR THRESHOLD
17	BRIGHT CENT	37	BELL FILTER
18	BRIGHT MAX	38	BANDPASS
19	BRIGHT MIN		

Fig. 1-2

2. BASIC ADJUSTMENTS

(VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP4001** and CH-2 to **TP4201**.
2. Playback the alignment tape. **(JG001F)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes 6.5 ± 0.5H.
(Refer to Fig. 2-1-A, B)
7. Stop the alignment tape.

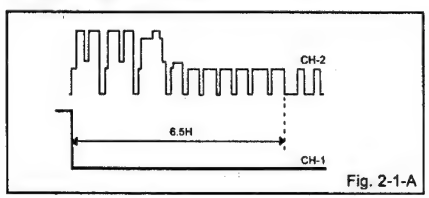


Fig. 2-1-A

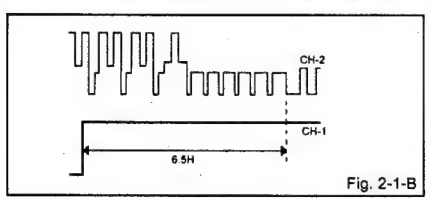


Fig. 2-1-B

2-2: VCO

1. Place the set with Aging Test for more than 10 minutes.
2. Connect the oscillator (38.9MHz) to **TP601**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "VCO COARSE".
4. Press the VOL. UP/DOWN button on the remote control until the "OK" appear on the screen. If the "OK" is not displayed, select the "-" side on the changed from "+" to "-".
5. Press the CH UP button once to set to "VCO FINE" mode.
6. Press the VOL. UP/DOWN button on the remote control to select the 5 step down point from the upper limit on the "OK".
(Example: In case of the "OK" point 30~41, select 36.)

ELECTRICAL ADJUSTMENTS

2-3: RF AGC

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the UHF (63dB).
3. Connect the digital voltmeter between the **pin 5 of CP603** and the **pin 1 (GND) of CP603**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "RF AGC".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.4 ± 0.1V.

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Connect the digital voltmeter to **TP501**.
2. Set condition is AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Adjust the **VR502** until the digital voltmeter is 135 ± 0.5V.

2-5: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

2-6: HORIZONTAL POSITION

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(08)** on the remote control to select "H POSI (50)".
4. Press the VOL. UP/DOWN button on the remote control until the right and left screen size of the vertical line becomes the same.
5. Receive the cross hatch signal of NTSC. (Audio Video Input)
6. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

2-7: VERITCAL POSITION

NOTE: Adjust after performing adjustments in section 2-6.

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(09)** on the remote control to select "V POSI (50)".
4. Check if the step No. V.POSI (50) is "5".
5. Adjust the **VR402** until the horizontal line becomes fit to notch of the shadow mask.
6. Receive the cross hatch signal of NTSC. (Audio Video Input)
7. Using the remote control, set the brightness and contrast to normal position.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(09)** on the remote control to select "V POSI (60)".
9. Check if the step No. V.POSI (60) is "15".

2-8: VERTICAL LINEARITY

NOTE: Adjust after performing adjustments in section 2-7.

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the **VR401** until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-9: VERTICAL SIZE

NOTE: Adjust after performing adjustments in section 2-8.

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(11)** on the remote control to select "V SIZE (50)".
4. Press the VOL. UP/DOWN button on the remote control until the rectangle on the center of the screen becomes square.
5. Receive a broadcast and check if the picture is normal.
6. Receive the cross hatch signal of NTSC. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

2-10: OSD HORIZONTAL

1. Using the remote control, set the brightness and contrast to normal position.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(31)** on the remote control to select "H POS OSD".
3. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum.
(Refer to Fig. 2-2)

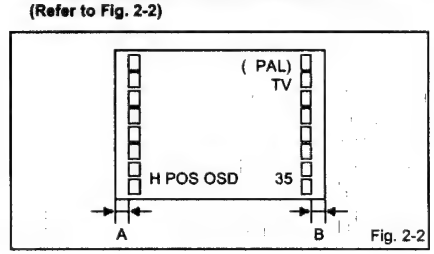


Fig. 2-2

2-11: CUT OFF

1. Set condition is AV MODE without signal.
2. Using the remote control, set the brightness and contrast to normal position.
3. Place the set with Aging Test for more than 15 minutes.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(00)** on the remote control to select "CUT OFF".
5. Adjust the **Screen Volume** until a dim raster is obtained.

2-12: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "R DRIVE".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R DRIVE.
6. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "G DRIVE", "M R CUTOFF" or "M G CUTOFF".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R DRIVE, G DRIVE, M R CUTOFF or M G CUTOFF.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-13: BRIGHT CENT

1. Receive the PAL black pattern*. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRIGHT CENT".
4. Press the VOL. UP/DOWN button on the remote control until the screen begin to shine.
5. Receive the PAL black pattern*. (Audio Video Input)
6. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

* The Black Pattern means the whole black raster signal. Select the "RASTER" of the pattern generator, set to the OFF position for each R, G and B.

2-14: CONTRAST CENT

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(20)** on the remote control to select "CONTRAST CENT".
2. Press the VOL. UP/DOWN button on on the remote control until the contrast step No. becomes "24".
3. Press the AV button on the remote control to set to the AV mode.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(20)** on the remote control to select "CONTRAST CENT".
5. Press the VOL. UP/DOWN button on on the remote control until the contrast step No. becomes "24".

2-15: SUB SHARPNESS

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(27)** on the remote control to select "SHARPNESS".
2. Press the VOL. UP/DOWN button on on the remote control until the contrast step No. becomes "5".
3. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.

2-17: COLOR CENT

1. Receive the PAL color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast and color to normal position.
3. Connect the oscilloscope to **TP803.**
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COLOR CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 90 ± 5% of the white level. **(Refer to Fig. 2-3)**
7. Receive the PAL color bar pattern. (Audio Video Input)
8. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.

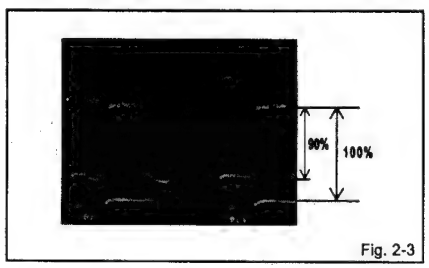


Fig. 2-3

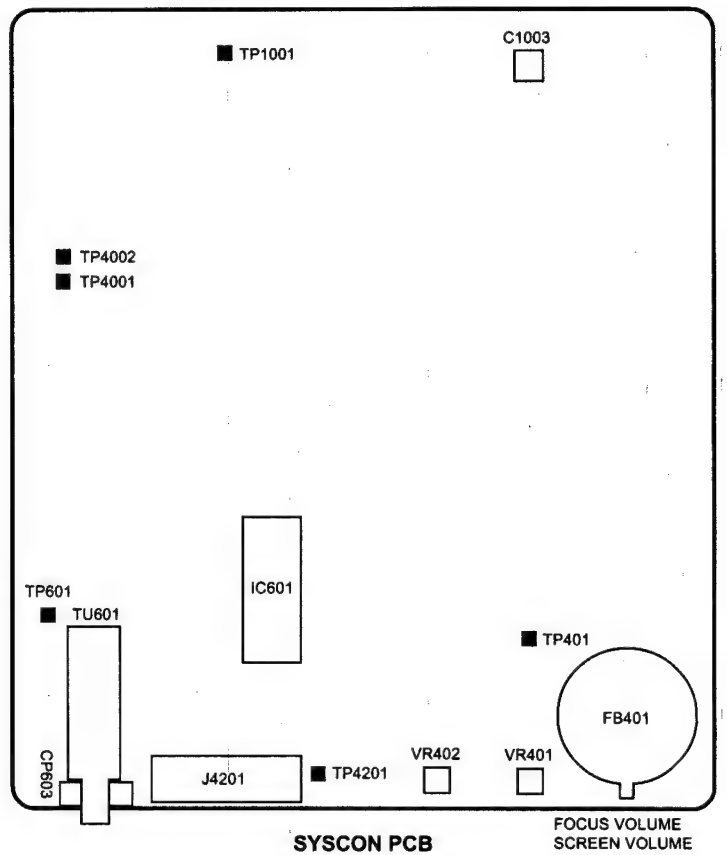
2-18: Confirmation of Fixed Value (Step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

NO.	FUNCTION	RF (50Hz)	RF (60Hz)	AV
02	AGC GAIN	00	---	---
04	R CUTOFF	31	---	---
06	G CUTOFF	31	---	---
07	B DRIVE	31	---	---
15	VCO COARSE L1	00	---	---
16	VCO FINE L1	00	---	---
18	BRIGHT MAX	55	---	---
19	BRIGHT MIN	20	---	---
21	CONTRAST MAX	40	---	---
22	CONTRAST MIN	10	---	---
24	COLOR MAX	60	---	---
25	COLOR MIN	10	---	---
27	SHARP	05	---	05
30	M B CUT OFF	50	---	---
35	CVBS OUT	10	---	---
36	APR THRESHOLD	15	---	---
37	BELL FILTER	00	---	---
38	BANDPASS	00	---	---

*To check for the fixed values of the RF (60Hz), indicate the adjustment mode screen while input the 60Hz video signal.

3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE



ELECTRICAL ADJUSTMENTS

4. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 4-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

4-2: PURITY

NOTE

Adjust after performing adjustments in section 4-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue color.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

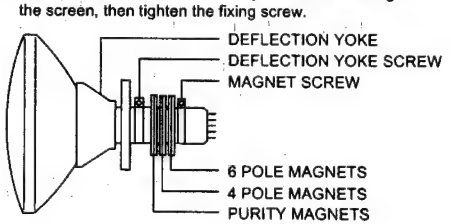


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

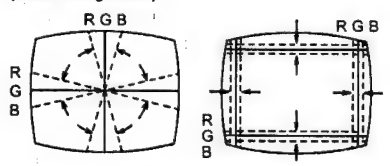
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

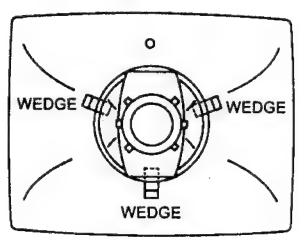
Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 4-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 4-2-b)**



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

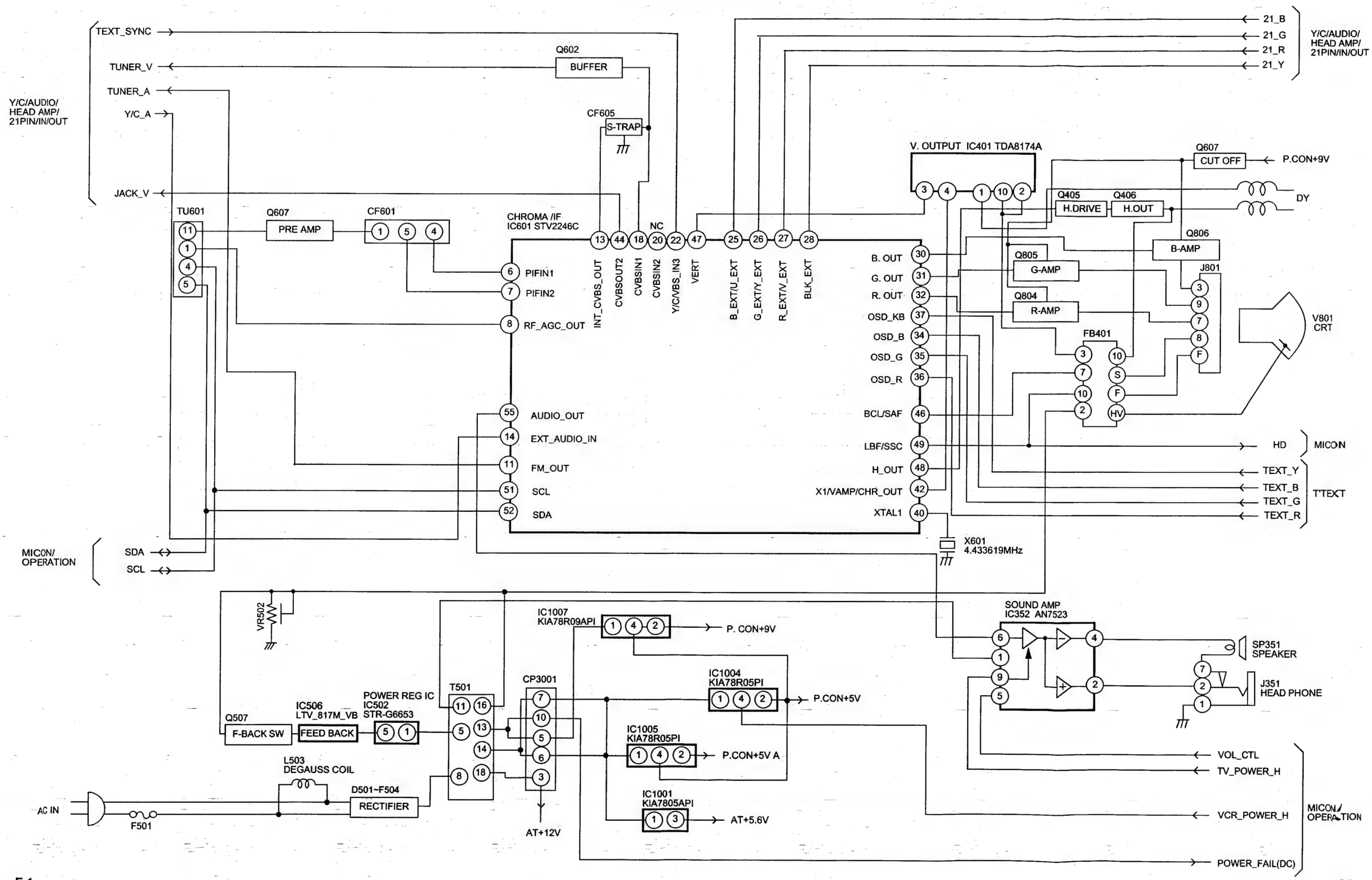
Fig. 4-2-a



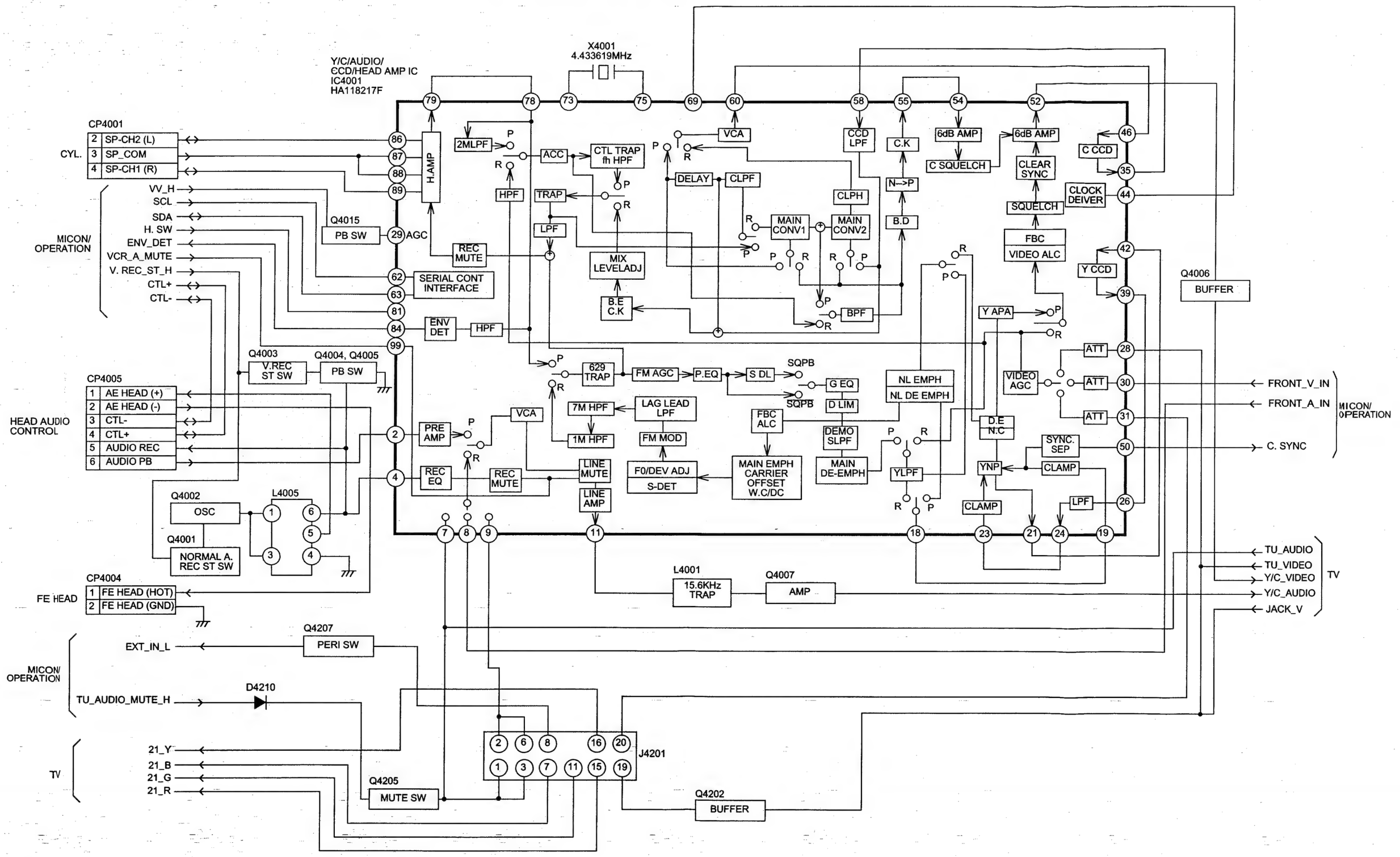
WEDGE POSITION

Fig. 4-2-b

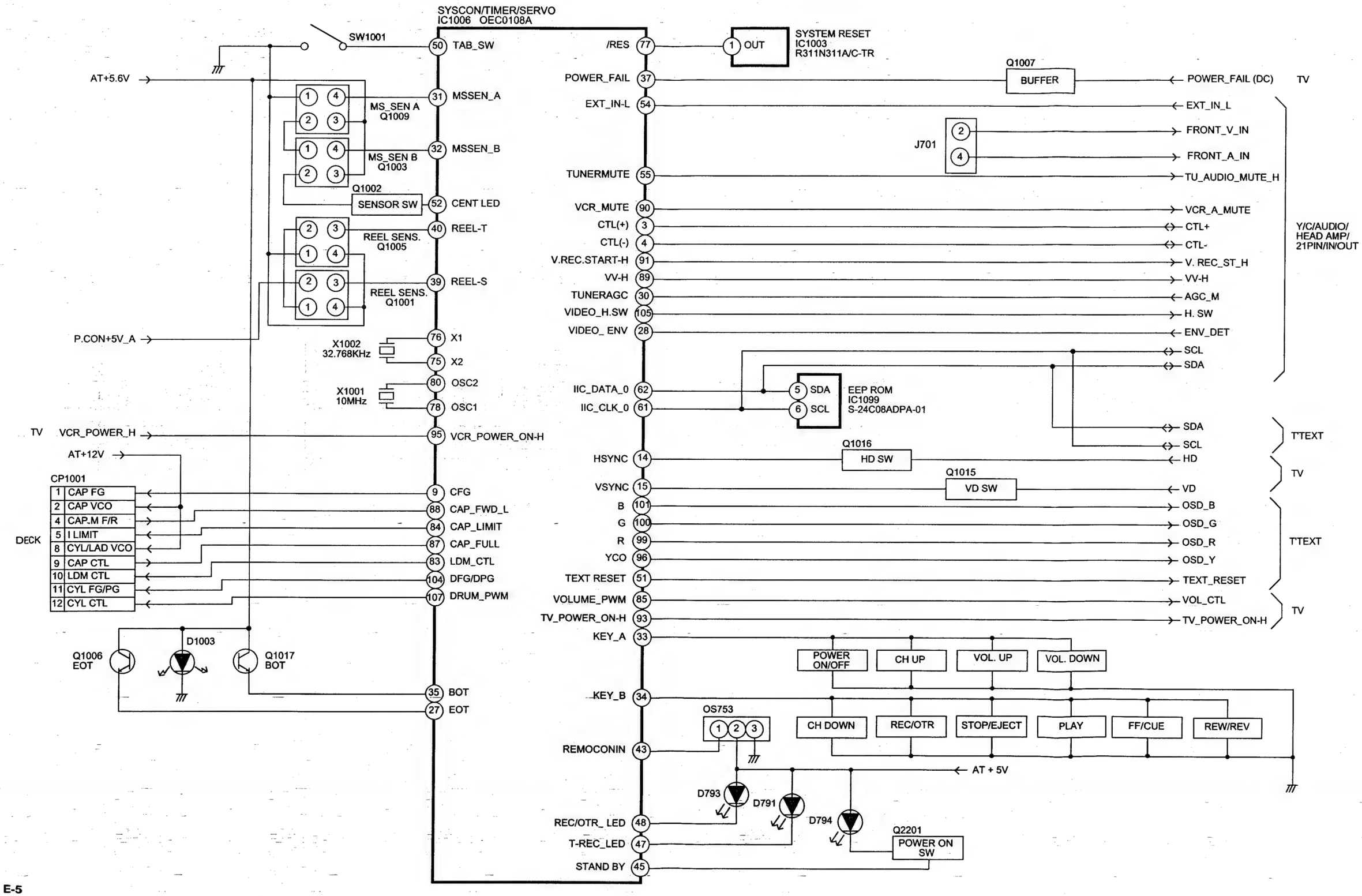
TV BLOCK DIAGRAM



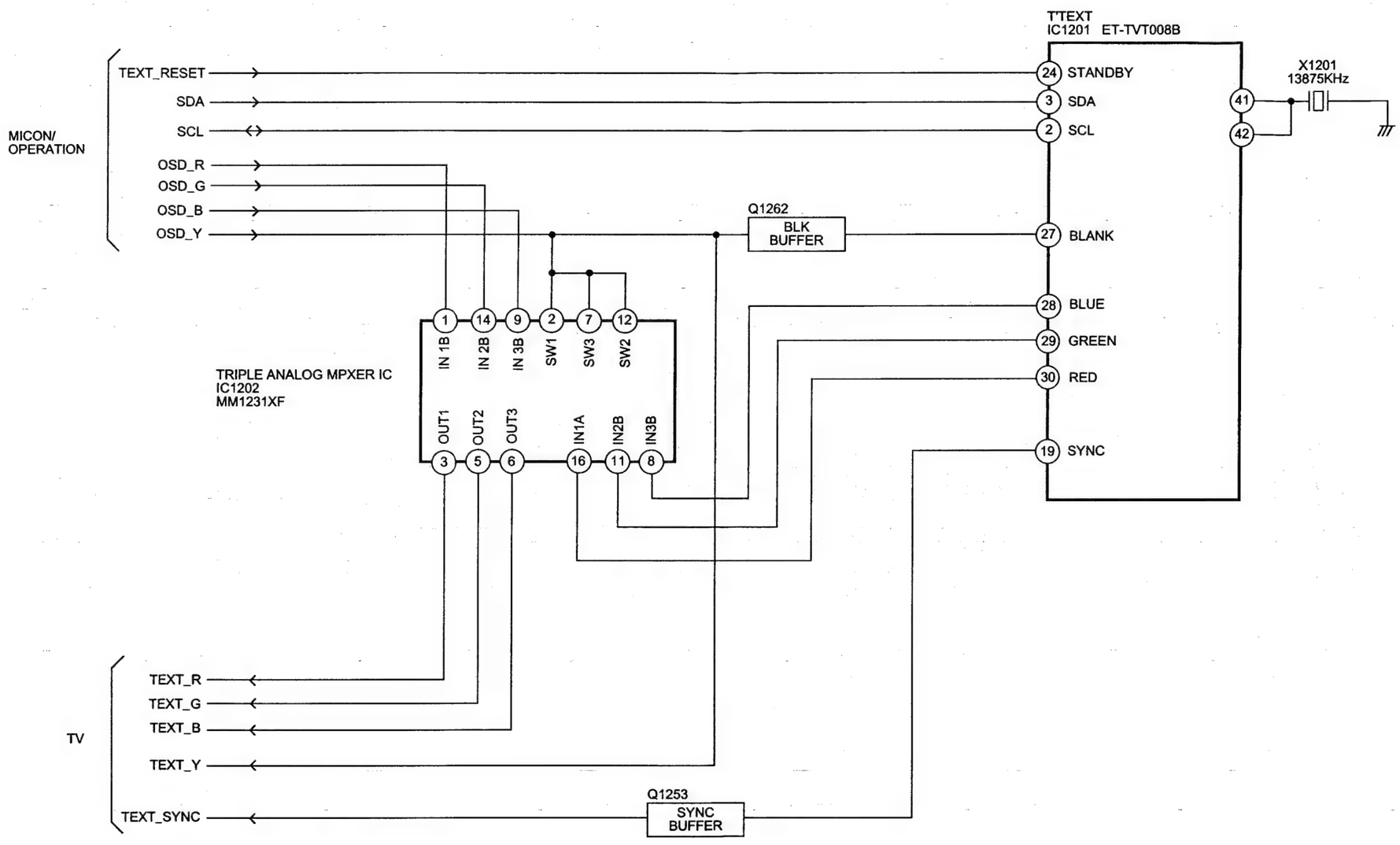
Y/C/AUDIO/HEAD AMP/21PIN/IN/OUT BLOCK DIAGRAM



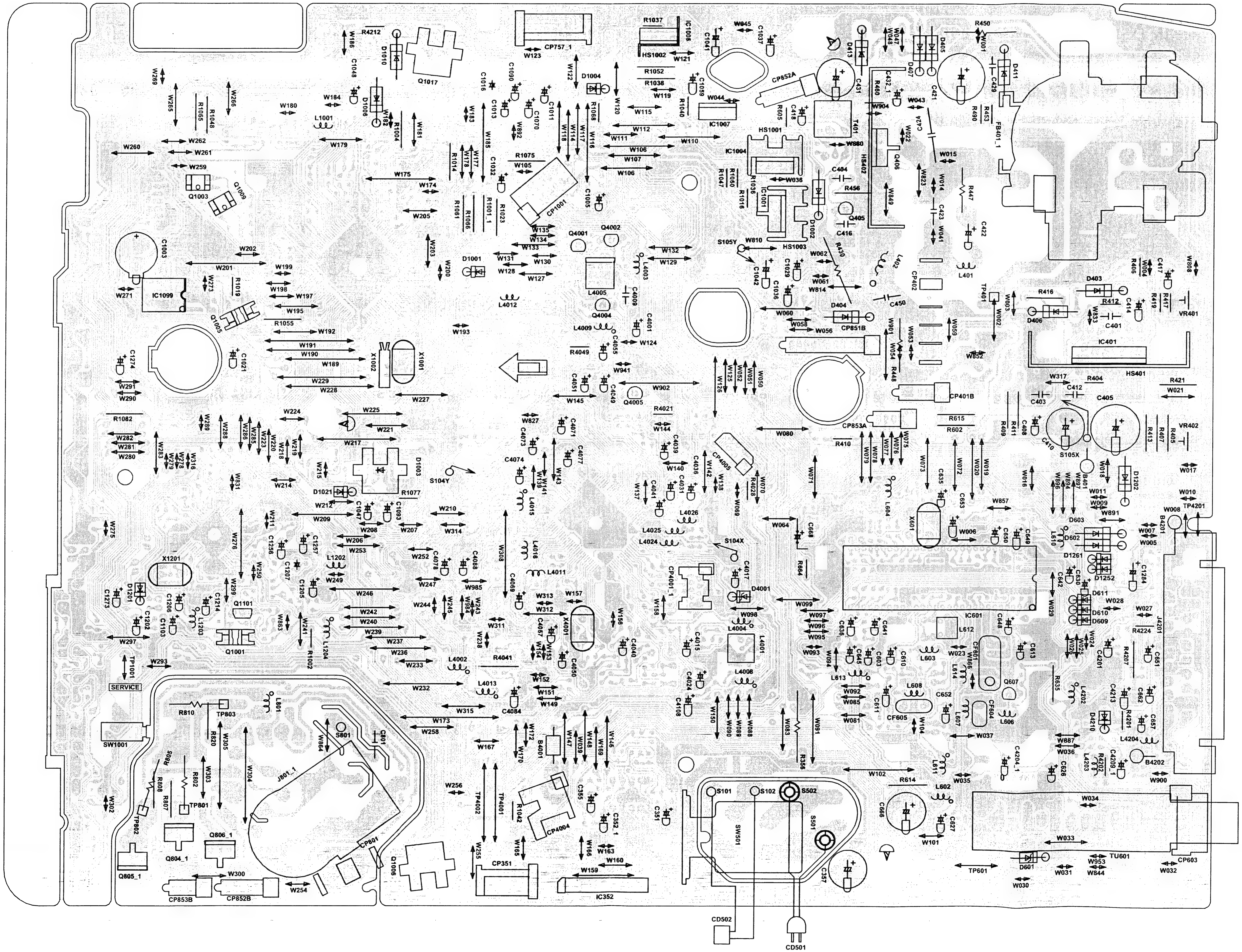
MICON/OPERATION BLOCK DIAGRAM



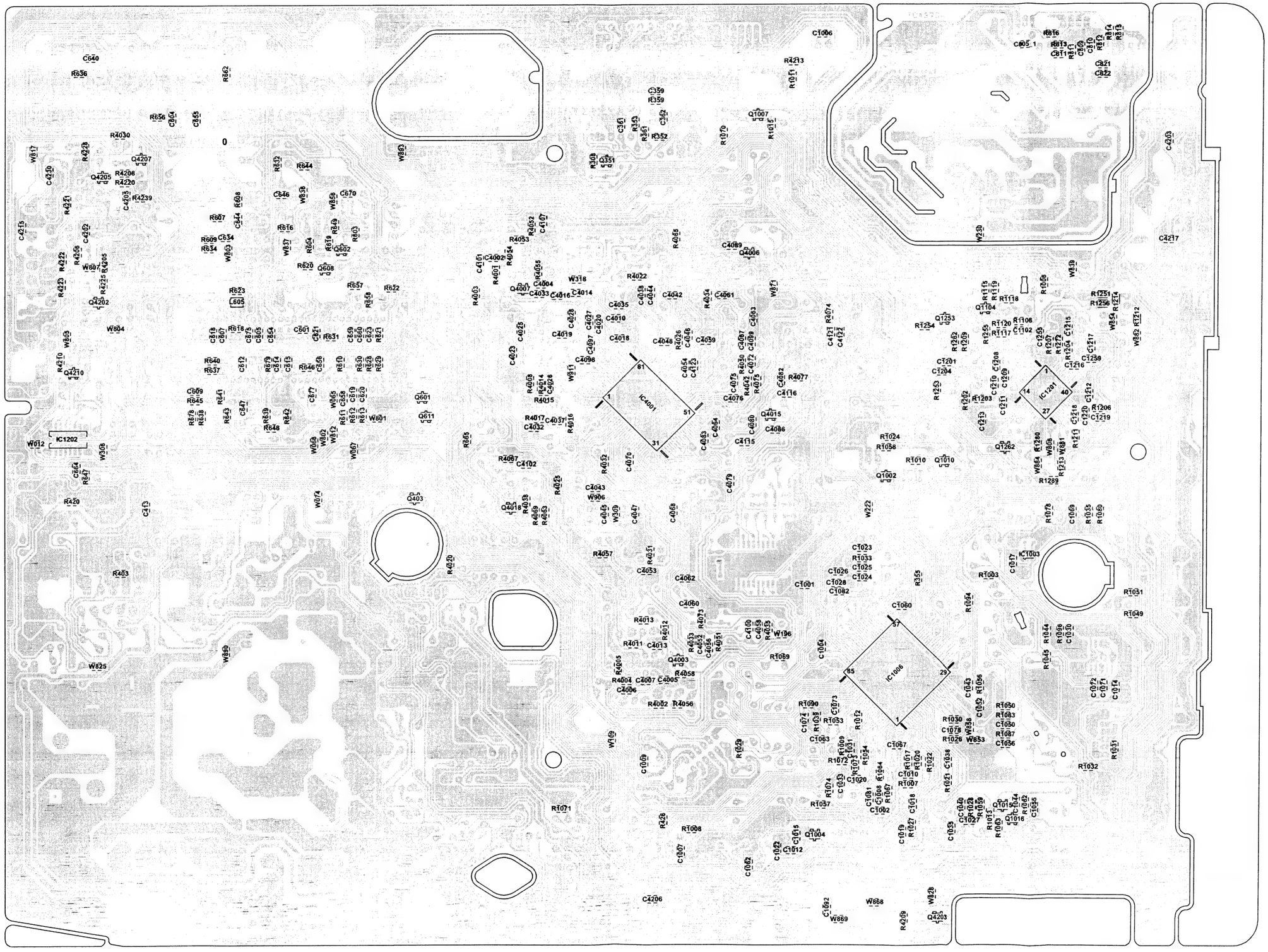
T' TEXT BLOCK DIAGRAM



PRINTED CIRCUIT BOARDS
SYSCON/CRT/POWER SW (INSERTED PARTS)
SOLDER SIDE

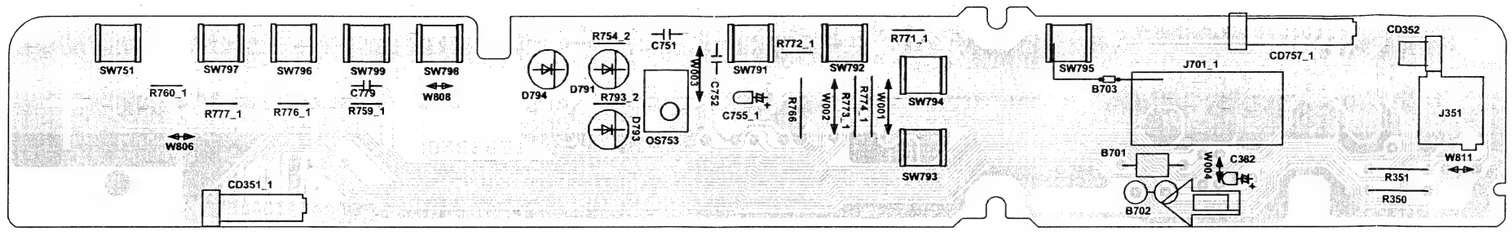


PRINTED CIRCUIT BOARDS
SYSCON/CRT (CHIP MOUNTED PARTS)
SOLDER SIDE

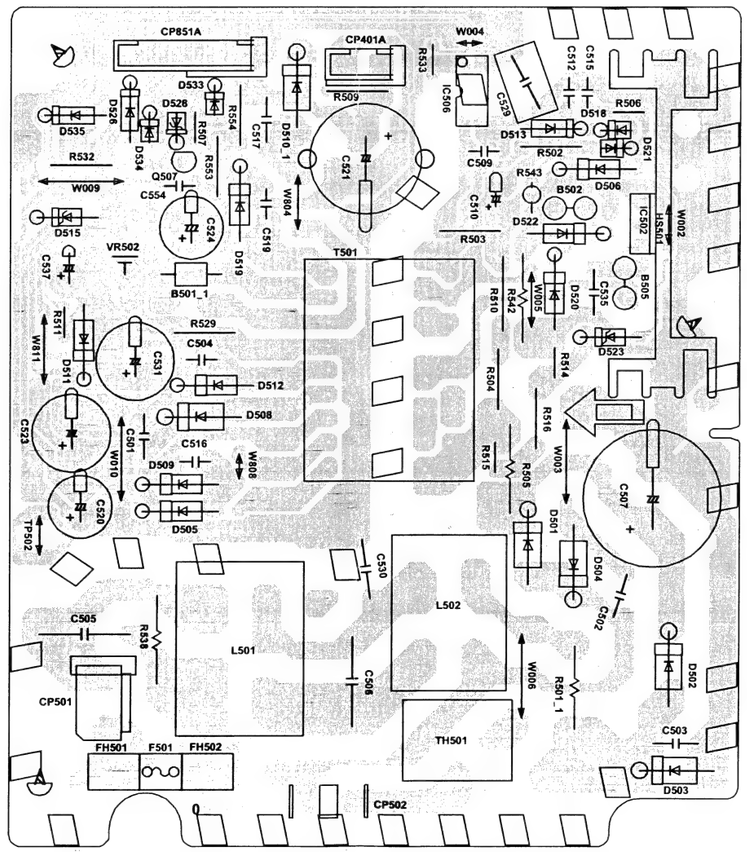


PRINTED CIRCUIT BOARDS

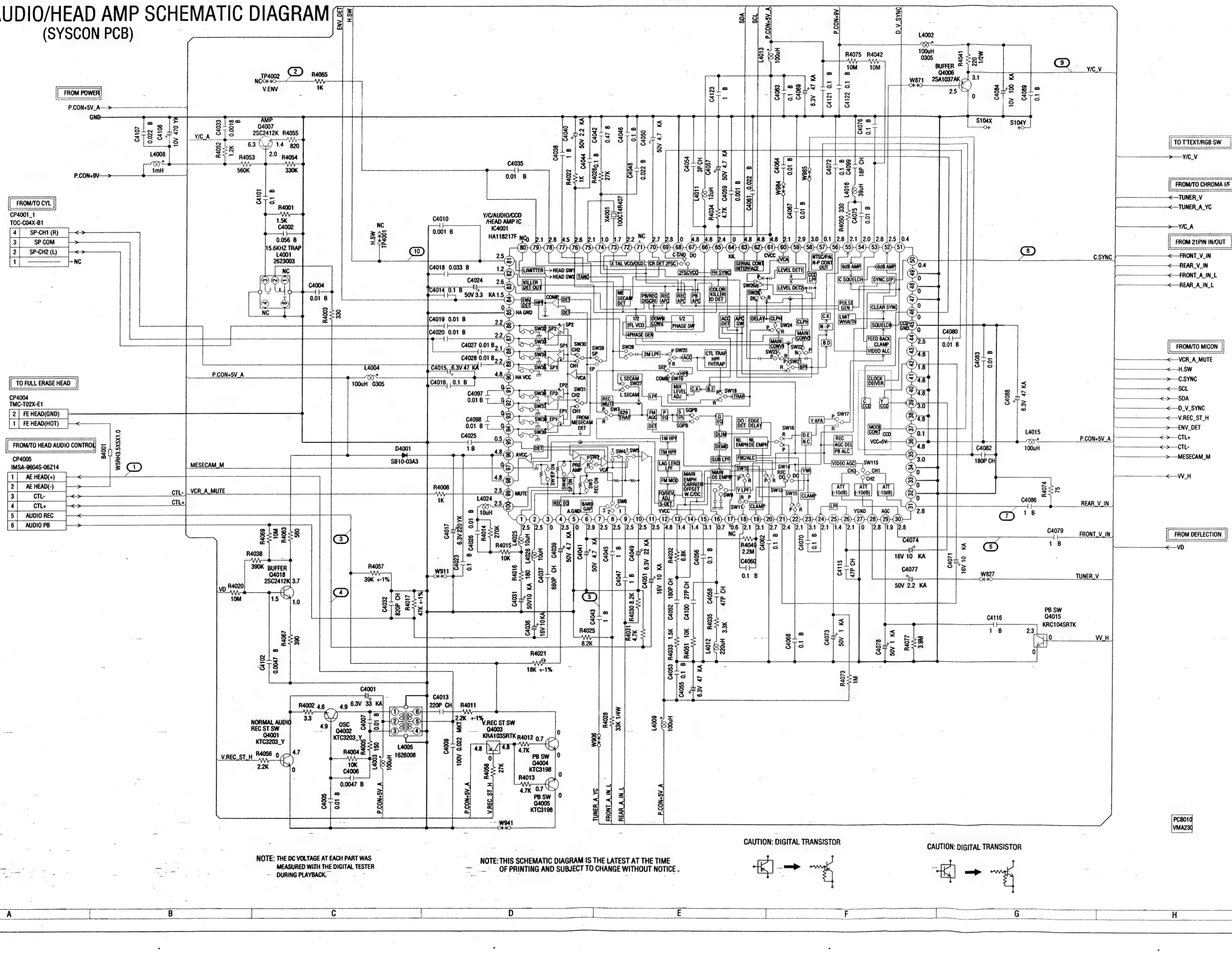
OPERATION
SOLDER SIDE



POWER
SOLDER SIDE



Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM
(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

MICON SCHEMATIC DIAGRAM
(SYSCON PCB)

FROM/TO POWER
AT+5.6V
GND
D1006 SB140-EIC
D1010 SB140-EIC

POWER_FAIL[DC]
VCR_POWER_H
P.CON+5V_A
P.CON+5V
AT+12V
MOTOR_GND

FROM/TO Y/C/AUDIO HEAD AMP
MESECAM_M
D_V_SYNC
V.REC_ST_H
VV_H
SCL
SDA
H.SW
ENV_DET
VCR_A_MUTE
CTL+
CTL-
C.SYNC
BOT

BOT SENSOR Q1017 ST-304L
EOT SENSOR Q1006 ST-304L
D1003 LNA2702L01OR
CENT LED SW Q1002 KRC103SRTK
TAB SW SW1001 MXS01380MPP0

FROM/TO CAPSTAN DD UNIT
CP1001 TMC-J12P-B2

1	CAP_FG
2	CAP_VCO
3	VCC
4	CAP/M/F/R
5	I_LIMIT
6	MOTOR_GND
7	GND
8	CYL/LAD_VCO
9	CAP_CTL
10	LDM_CTL
11	CYL_FG/PG
12	CYL_CTL

CONTROL_IN
LDM_CTL
CYL_FG/PG
CYL_DRIVE

SYSCON/TIMER/SERVO IC
IC1006
OEC0108A

VOL_CTL
CYL_DRIVE
CONTROL_IN
CAP_F/R
OSD_Y
VV_H
VCR_A_MUTE
V.REC_ST_H
PROTECT
TV_POWER_H
TUNER_ON/OFF
VCR_POWER_H
H_CTL
OSD_R
OSD_G
OSD_B
FF/REW-L
CYL_FG/PG
CYL_DRIVE
H.SW
CONTROL_IN
D_V_SYNC
C.SYNC
CENT_LED_CTL
TAB_SW
CTL+
CTL-
FF/REW-L

CAP_LIMIT
LDM_CTL
MDO
VCL
OSC2
VSS
OSC1
/RES
X1
X2
FWE
MS_SENS_CTL
P20/SI1
P21/SO1
DEC_TU_SW
IIC_DATA_O
IIC_CLK_O
TRICK PB H
PAL-H
IIC_OFF
VSS

85 VOLUME_PWM
86 CYL_SPEED_UP
56 VCC
55 TUNER MUTE

CAP_LIMIT
CAP_FULL
CAP_FWD-L
VV-H
VCR_MUTE
V.REC.START-H
PROTECT
TV_POWER_ON-H
DA RGB SW
VCR_POWER_ON-H
YC0
BB L
H CONTROL
R
G
B
FF/REW-L
DPG
DFG/DPG
VIDEO_H.SW
HIFI_H.SW
DRUM_PWM
CAP_PWM
DUMMY.V.SYNC
VSS
C.SYNC
VCC

111 C.SYNC
112 VCC
30 TUNER AGC
29 MESECAM_M

SVSS
CTLREF
CTL(+)
CTL(-)
CTLBIAS
CTLFB
CTLAMP(O)
CTLSMT(I)
CFG
SVCC
AFGPC
AFDOSC
AFCLPF
HSYNC
VSYNC
CVIN2
CVIN1
OSDVCC
CVOUT
OSDVSS
4/2FSCOUT
4/2FSCIN
AVSS
DEW
HIFI ENV
AFT.S.CURVE
EOT
VIDEO_ENV
IIC_OFF

TU_AUDIO_MUTE_H
EXT_IN-L
TV_MUTE
CENT LED
TEXT RESET
TAB_SW
ON_TIMER_LED
REC/OTR_LED
T-REC_LED
OTP8_LED
STAND BY
DEGAUSS
REMOCON IN
CFG_IN2
SERVICE
REEL-T
REEL-S
SYNC IN
POWER_FAIL
AVCC
BOT
KEY_B
KEY_A
MSSEN_B
MSSEN_A
AGC_M
MESECAM_M

EEP ROM IC IC1099 S-24C08ADPA-01
SDA SCL TEST VCC VSS A2 A1 A0

R1015 22K EXT_IN_L
TV_A_MUTE
CENT_LED_CTL
TEXT_RESET
R1010 4.7K TAB_SW
REC_LED
T-REC_LED
STANDBY_H
R1082 22K 1/4W REMOCON_IN
R1035 22K
SERVICE NC TP1001
REEL-T
REEL-S
D1001 RB721Q-40C SYNC
R1069 18K
C1001 330P CH
R1055 10K 1/4W BOT
C1043 0.1 B
KEY_B
KEY_A
MS_SEN-B
MS_SEN-A
AGC_M
MESECAM_M
H.SYNC
V.SYNC
R1059 1K
R1013 10K
HD SW Q1016 2SC2412K
C1055 330P CH
R1048 220 1/4W
R1063 1.2K
R1065 33K 1/4W
C1044 0.01 B
R1062 4.7K
VD SW Q1015 2SC2412K
R1070 10K
POWER_FAIL[DC]
BUFFER Q1007 2SA1037AK
SW Q1010 KRA103SRTK
R1042 4.7K 1/4W
C1069 22P CH
D1021 1SS133
R1009 330
R1072 680
C1031 180P CH
R1012 330
R1073 680
C1020 180P CH
R1054 330
R1074 680
C1033 180P CH
OSD_R
OSD_G
OSD_B

MS_SEN-B
MS_SEN-A
P.CON-5V_A
REEL-S
REEL-T
RESET
MS_SEN A Q1009 RPI-352002
MS_SEN B Q1003 RPI-352002
REEL SENSOR Q1005 RPI-301
REEL SENSOR Q1001 RPI-301
SYSTEM RESET IC IC1003 R3111N311AVC
NC NC OUT IN GND

FROM/TO 21PIN IN/OUT
KEY_B
KEY_A
T-REC_LED
REC_LED
STANDBY_H
REMOCON_IN
EXT_IN_L
TU_AUDIO_MUTE_H
TUNER_ON/OFF
AT+5V

FROM/TO CHROMA/IF
PROTECT
SDA
SCL
IIC_OFF
AGC_M

FROM/TO T'TEXT/RGB SW
AT+5V
OSD_R
OSD_G
OSD_B
OSD_Y
SCL
SDA
TEXT_RESET

TO SOUND AMP
TV_A_MUTE
VOL_CTL
M.P.OFF_H
TV_POWER_H

FROM/TO DEFLECTION
H_CTL
VD
HD

PCB010
VMA230

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

POWER SCHEMATIC DIAGRAM

(SYSCON PCB)

FROM/TO TV POWER

CD401
CU251201

CP401B (CP401A)
B2013H02-5P

1	+B	→ +B
2	+B	
3		→ NC
4	H GND	→ H_GND
5	H GND	

FROM/TO TV POWER

CD851
CU2B1201

CP851B (CP851A)
B2013H02-11P

11	PROTECT_H	→ NC
10	POWER_FAIL	→ POWER_FAIL[DC]
9	SOUND+B	→ SOUND+B
8	SOUND_GND	→ SOUND_GND
7	UNREG+8V	
6	UNREG+8V	→ UNREG+8V
5	AT+13V	→ AT+13V
4	MOTOR_GND	→ MOTOR_GND
3	MOTOR+12V	→ AT+12V
2	GND	
1	GND	

R1075 1K 1/2W

W810 -

AT+13V

UNREG+8V

⚠ 9V REG IC
IC1007 KIA78R09API

IN (1) 12.8 | OUT (2) 9.6 | GND (3) 0 | SW (4) 4.9

C1041 16V 470 YK

C1037 10V 470 YK

R1037 100 1/4W

⚠ 5V REG. IC
IC1001 KIA7805API

IN (1) 8.0 | GND (2) 0.5 | OUT (3) 5.6

AT+5.6V

R1016 220 1/4W

R1036 22 1/4W

C1029 6.3V 470 YK

C1042 16V 470 YK

HS1003 763WAA0157

HS1001 763WAA0157

⚠ 5V REG. IC
IC1005 KIA78R05PI

IN (1) 8.2 | OUT (2) 5.3 | GND (3) 0.3 | SW (4) 4.9

R1040 100 1/4W

R1038 1K 1/2W

R1052 12 1/2W

C1059 6.3V 470 YK

⚠ 5V REG. IC
IC1004 KIA78R05PI

IN (1) 8.2 | OUT (2) 0.3 | GND (3) 5.3 | SW (4) 4.9

R1047 470 1/4W

R1060 12 1/4W

C1036 6.3V 470 YK

HS1002 763WSA0019

P.CON+9V

D1002 11E1-EIC P.CON+8V

R1071 100

P.CON+5V

GND

TO DEFLECTION
- +B
- H_GND
- GND
- AT+13V

TO Y/C/AUDIO HEAD.AMP
- P.CON+9V
- P.CON+5V_A
- GND

FROM/TO MICON
- VCR_POWER_H
- POWER_FAIL[DC]
- P.CON+5V_A
- AT+12V
- P.CON+5V
- MOTOR_GND
- GND
- AT+5.6V

TO T'TEXT/RGB SW
- P.CON+9V
- GND
- AT+5.6V

TO CHROMA/IF
- +B
- P.CON+8V
- P.CON+5V
- GND
- P.CON+9V

TO 21PIN IN/OUT
- P.CON+8V
- GND

TO SOUND AMP
- GND
- SOUND+B
- SOUND_GND

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY .

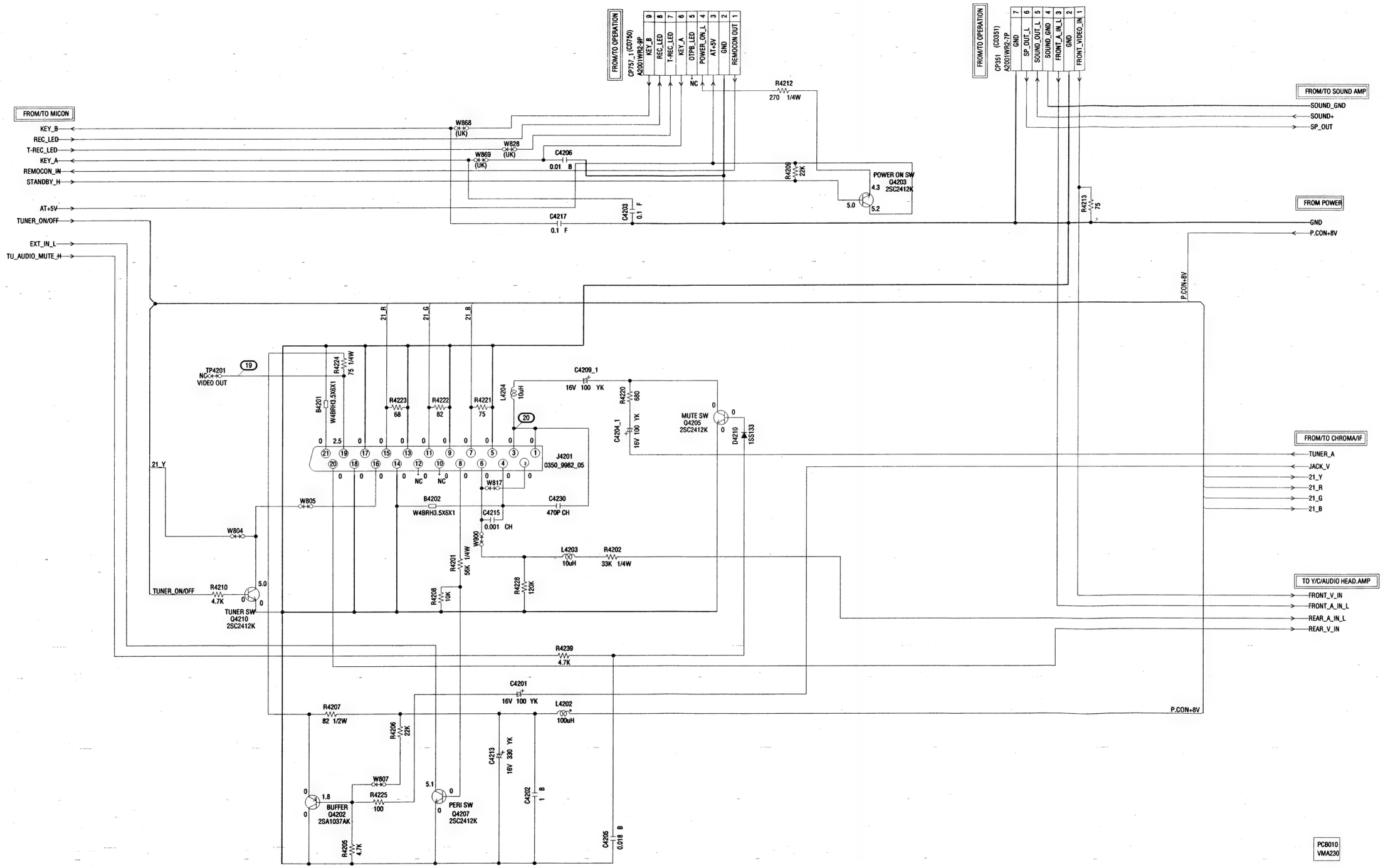
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

PCB010
VMA230

21PIN/IN/OUT SCHEMATIC DIAGRAM

(SYSCON PCB)

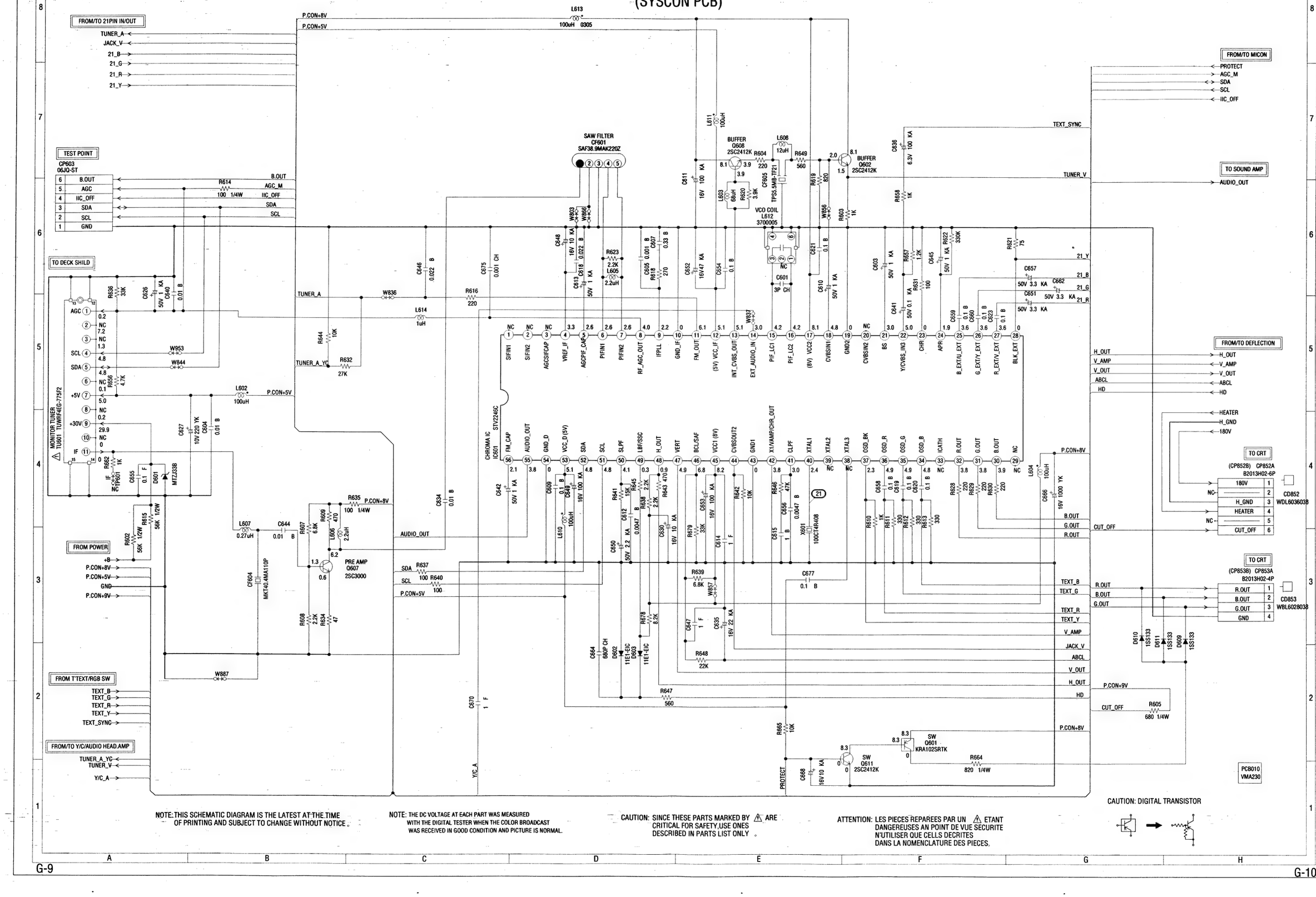


NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CHROMA/IF SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

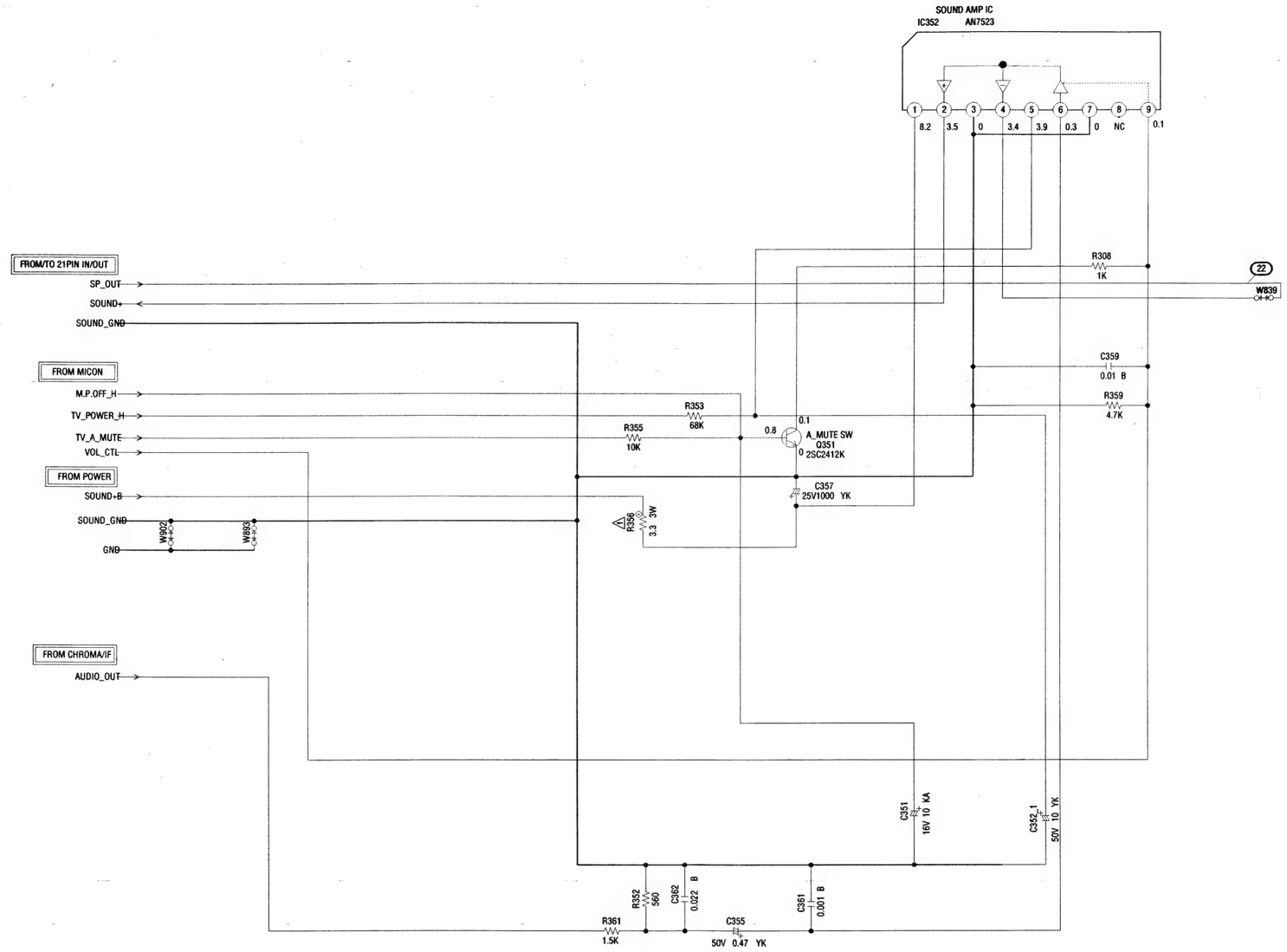
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

SOUND AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY .

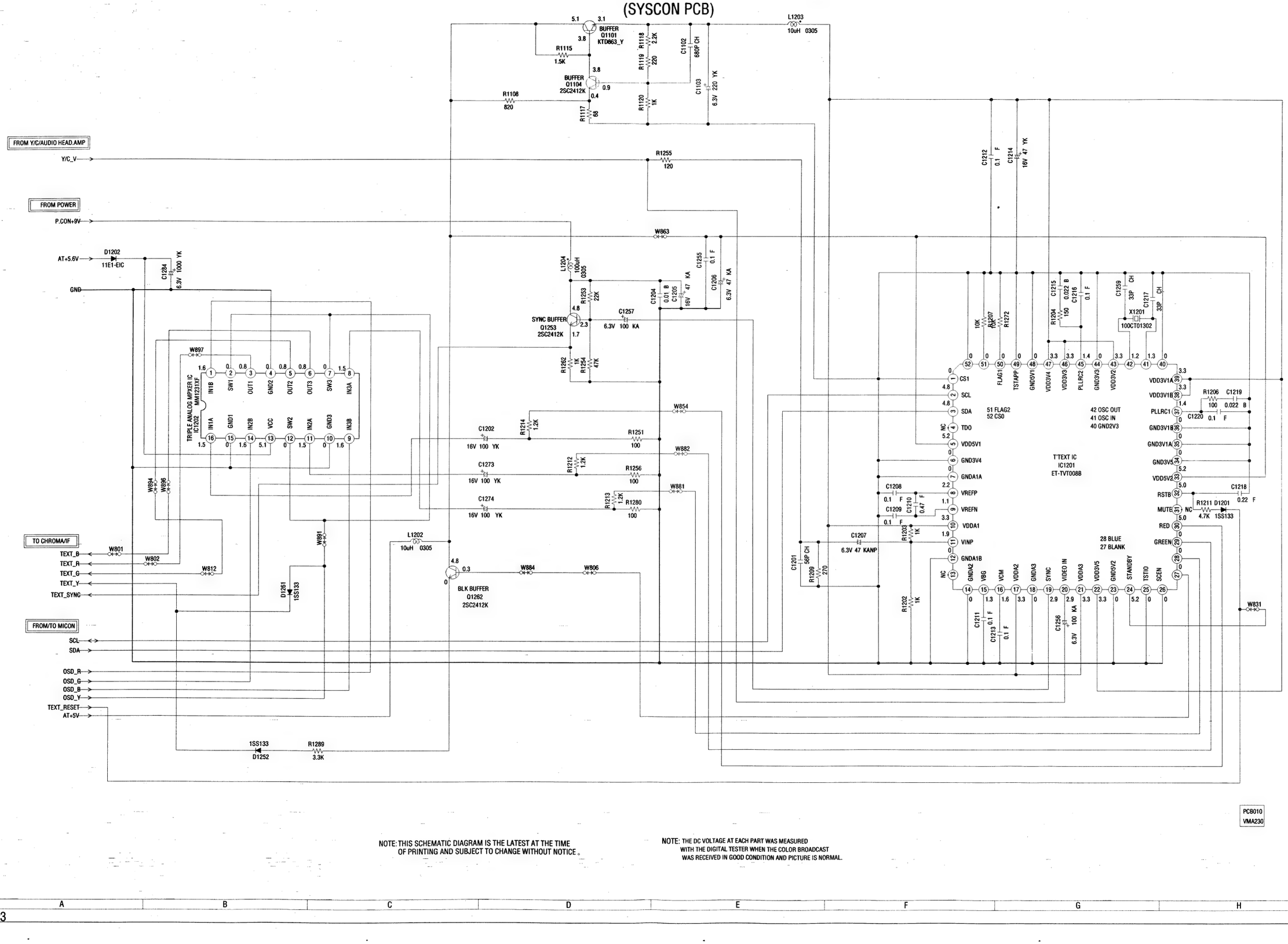
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

PCB010
VMA230

T'TEXT/RGB SW SCHEMATIC DIAGRAM

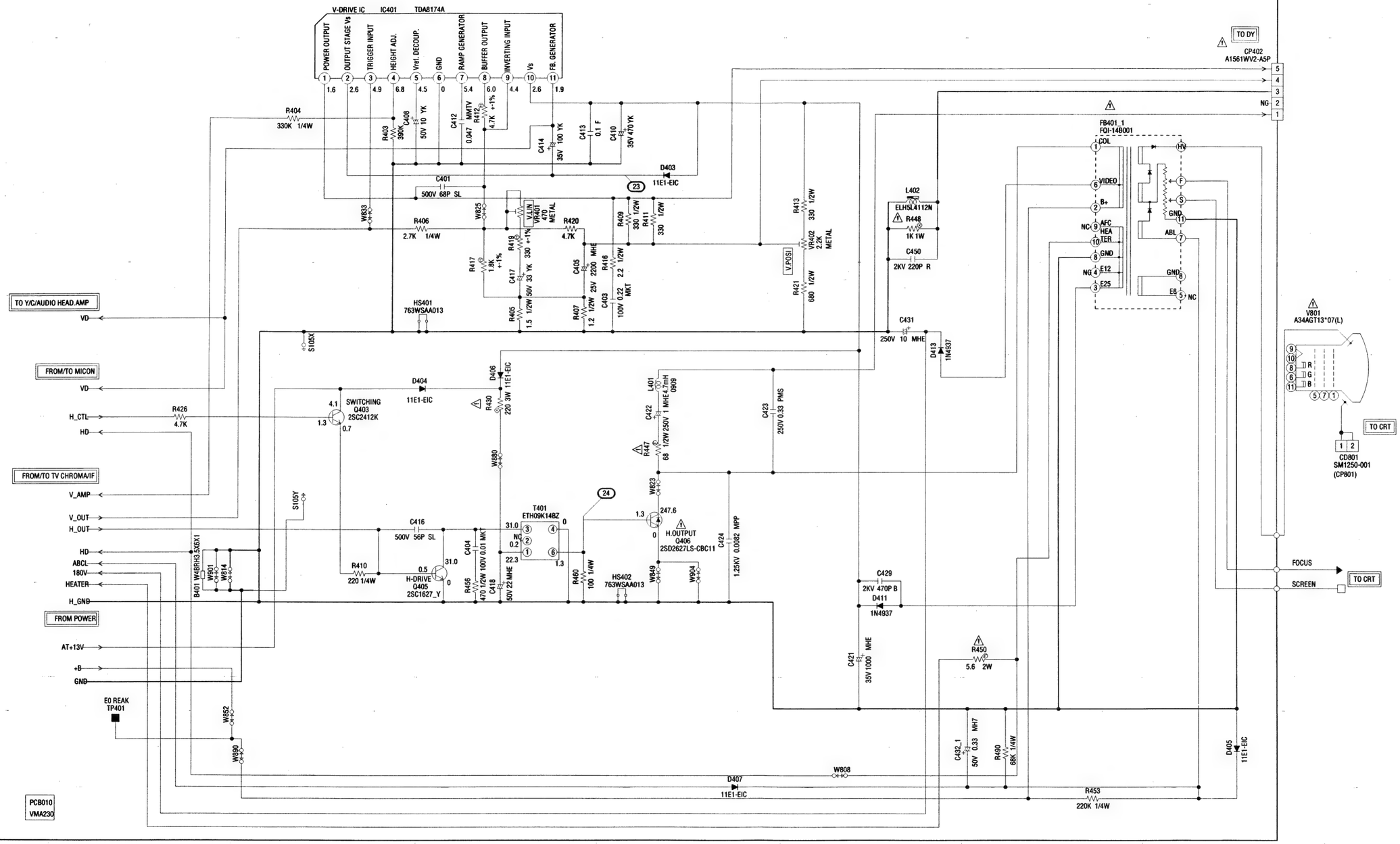
(SYSCON PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

DEFLECTION SCHEMATIC DIAGRAM (SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

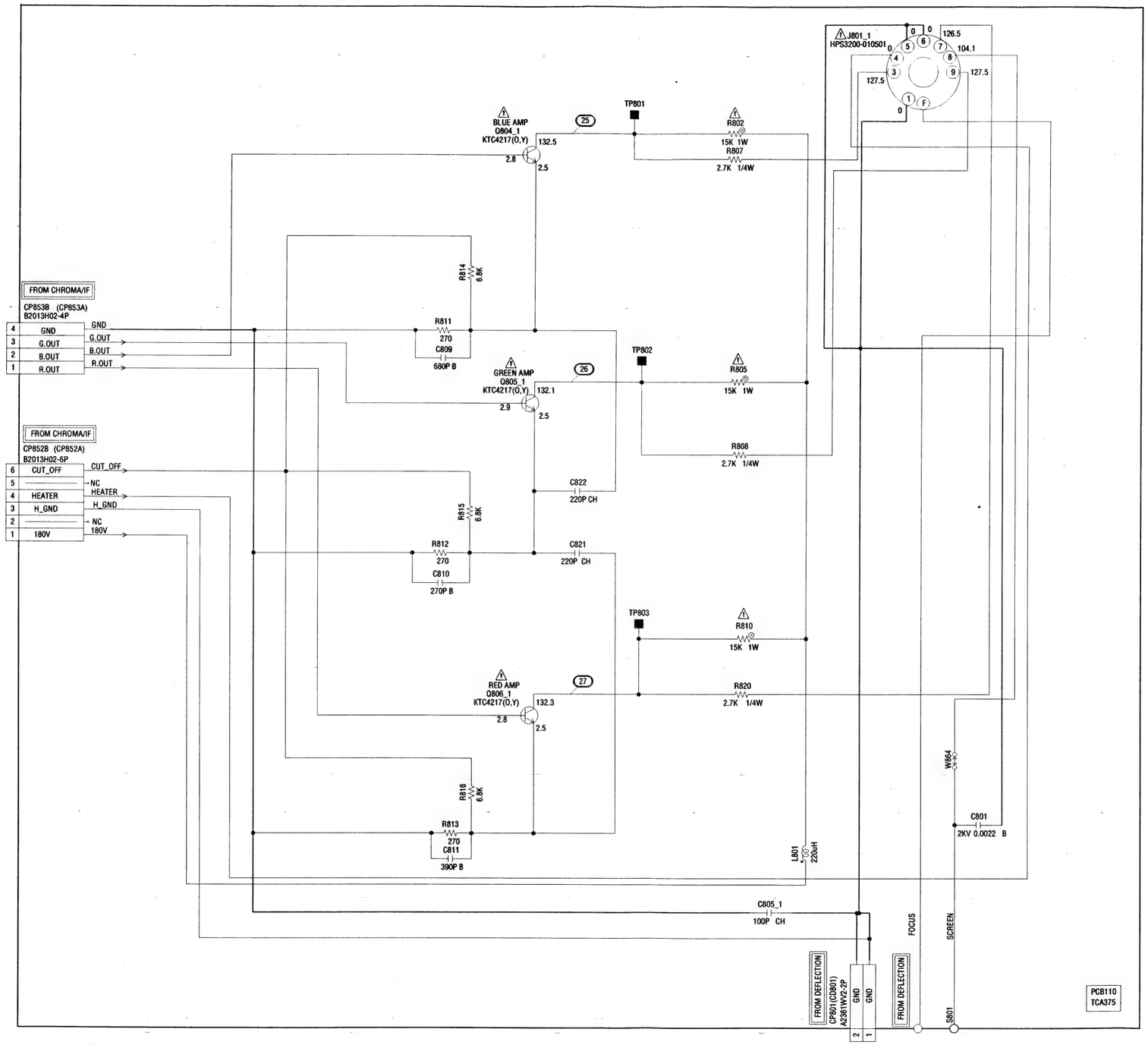
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY.

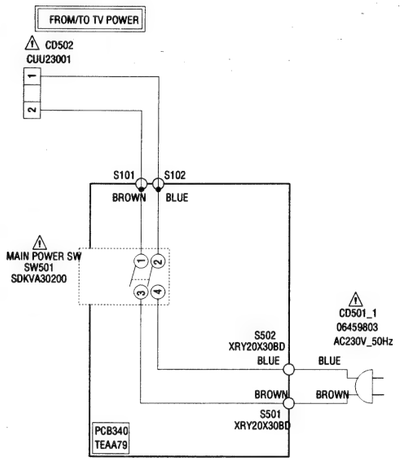
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

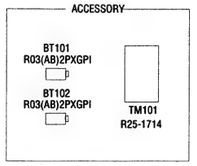
CRT SCHEMATIC DIAGRAM

(CRT PCB)



(POWER SW PCB)





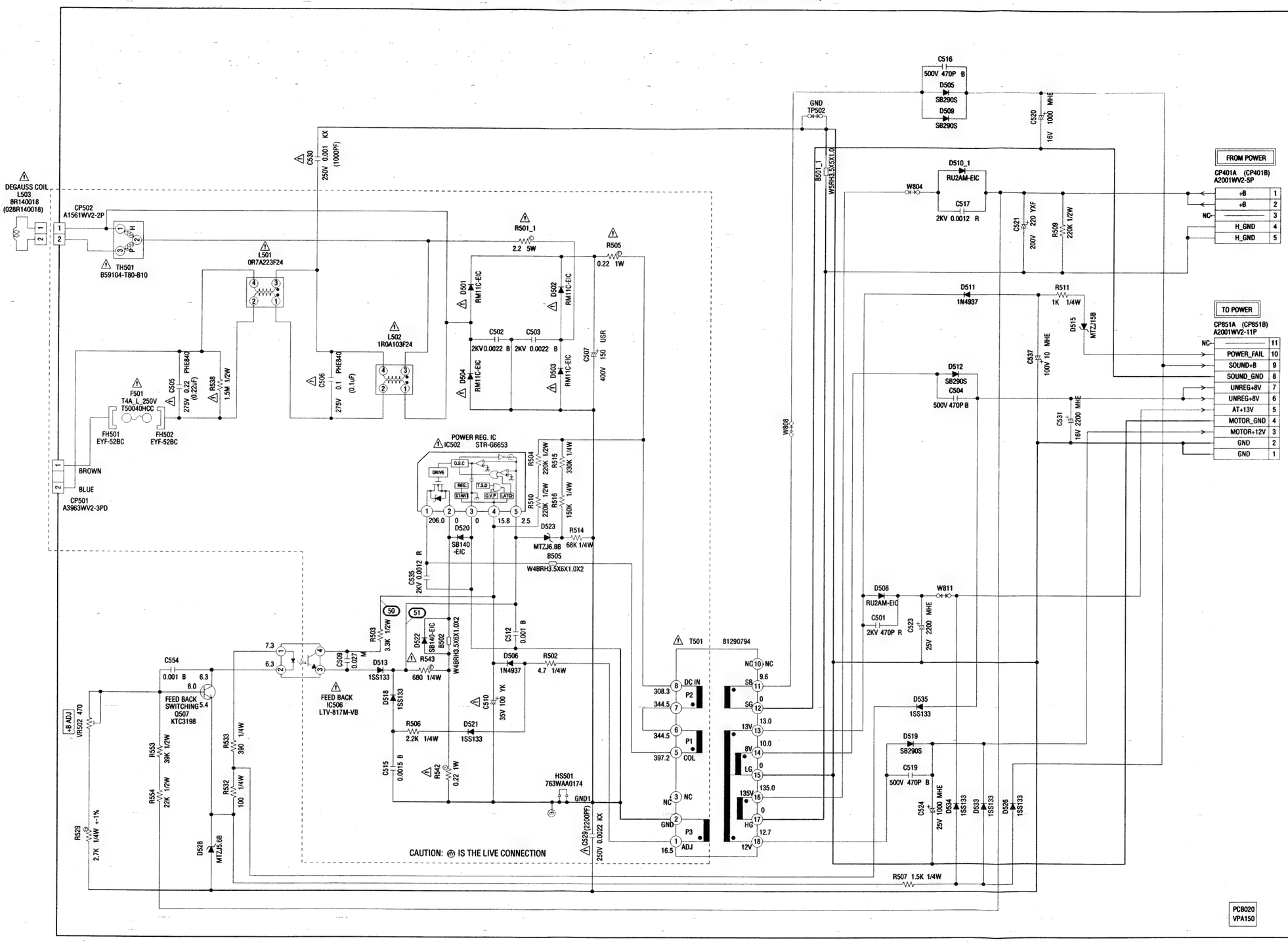
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

TV POWER SCHEMATIC DIAGRAM (POWER PCB)



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

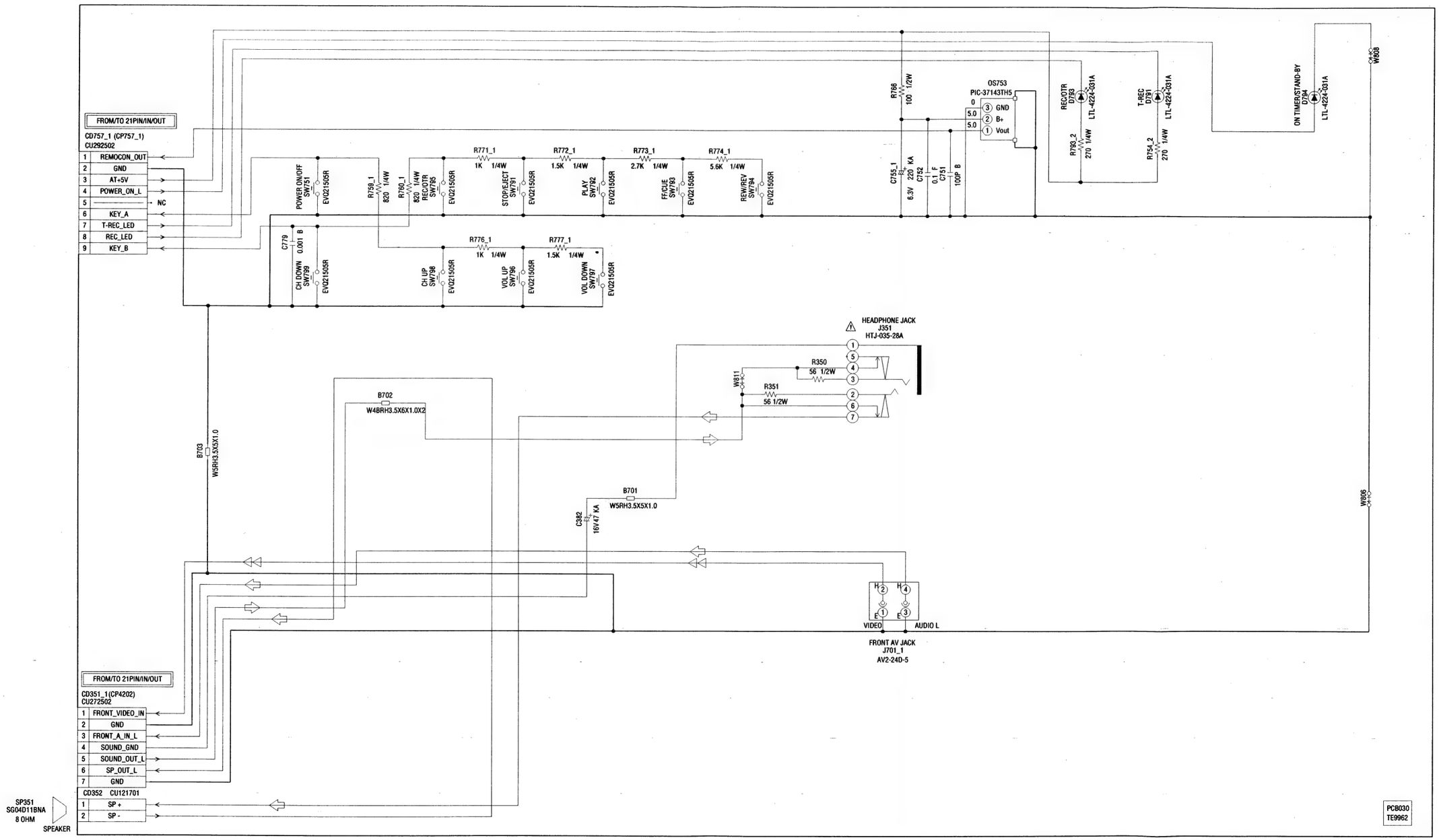
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

OPERATION SCHEMATIC DIAGRAM
(OPERATION PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

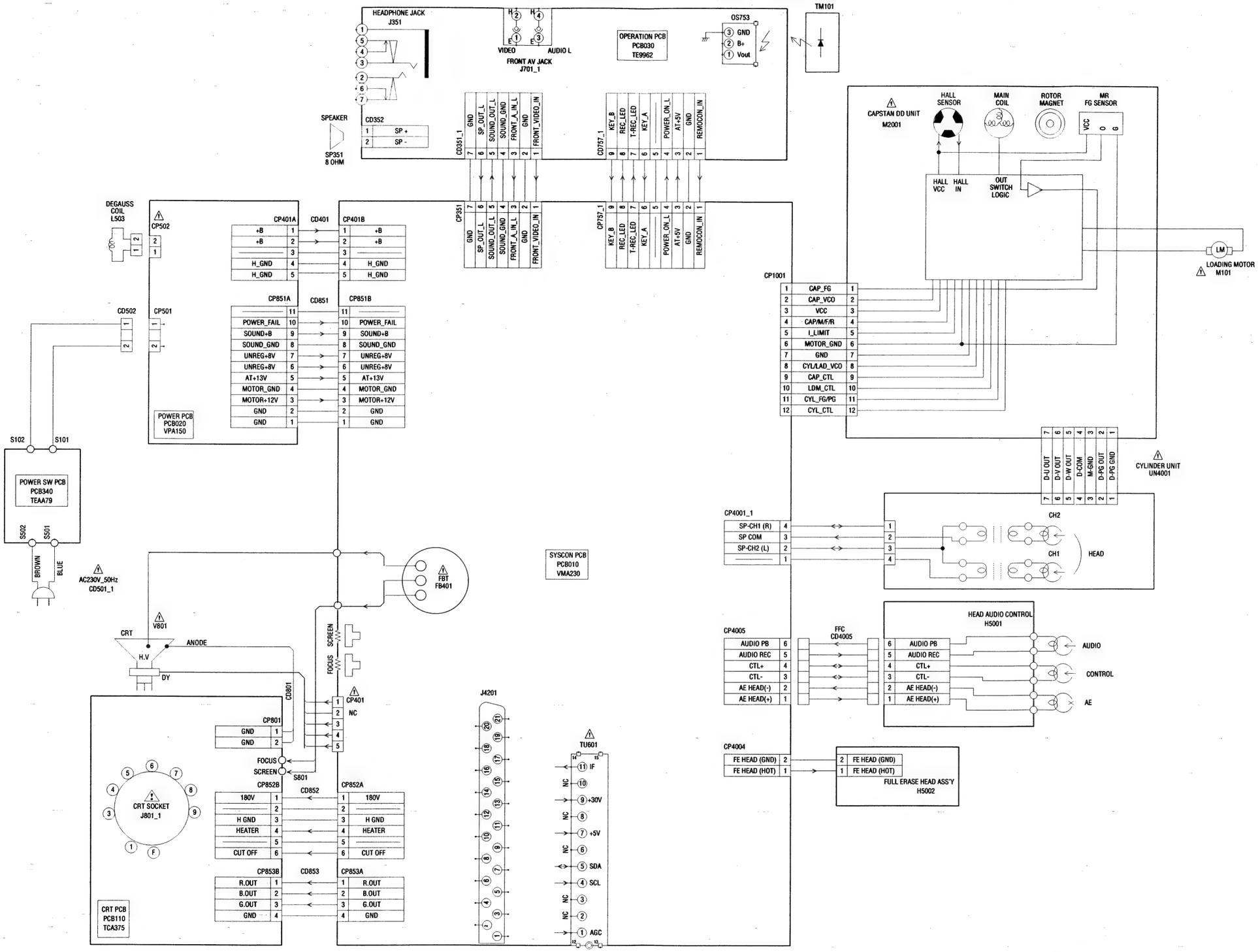
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

◁◁ TUNER VIDEO SIGNAL

⇦ AUDIO SIGNAL

INTERCONNECTION DIAGRAM



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

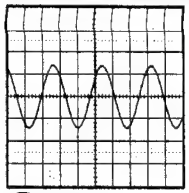
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY.

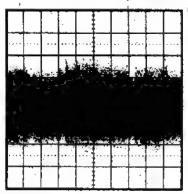
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

WAVEFORMS

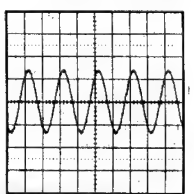
Y/C/AUDIO/HEAD AMP



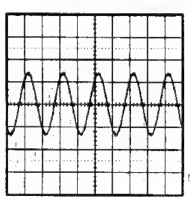
① REC
20.0V 5μs/div



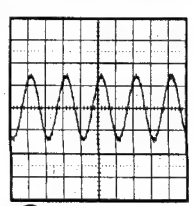
② PB
50mV 5ms/div



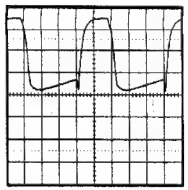
③ REC
20.0V 2ms/div



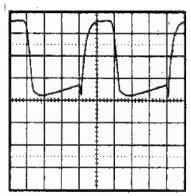
④ REC
0.5V 0.5ms/div



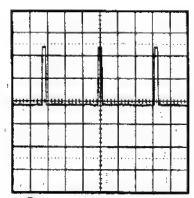
⑤ REC
100mV 0.5ms/div



⑥ 1.0V 5μs/div

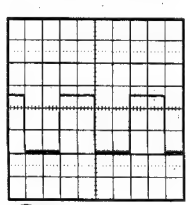


⑦ 1.0V 5μs/div



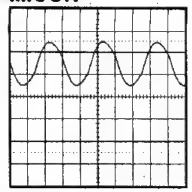
⑧ REC
2.0V 20μs/div

⑨ PB
0,5V 10ms/div

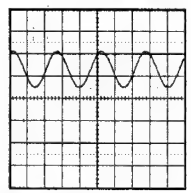


⑩ PB
2.0V 10ms/div

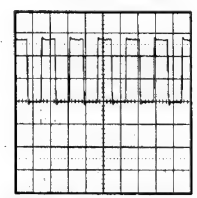
MICON



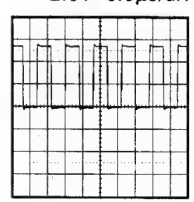
⑪ REC
1.0V 10μs/div



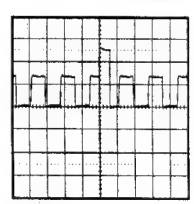
⑫ REC
2.0V 1ms/div



⑬ PB
2.0V 0.5μs/div



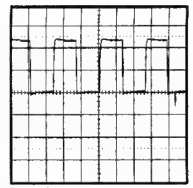
⑭ PB
2.0V 0.5μs/div



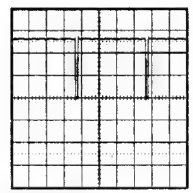
⑮ REC
2.0V 1ms/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

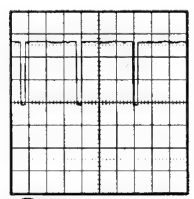
WAVEFORMS



⑯ PB
2.0V 5ms/div

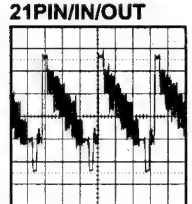


⑰ REC
2.0V 5ms/div

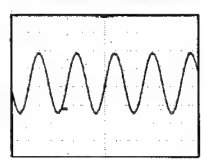


⑱ REC
2.0V 20μs/div

21PIN/IN/OUT

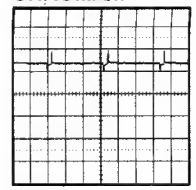


⑲ AV OUT
200mV 20μs/div



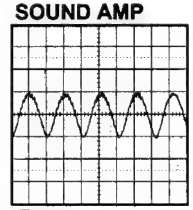
⑳ AV OUT
0.5V 500μs/div

CHROMA/IF



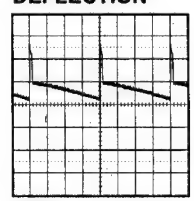
㉑ REC
2.0V 20μs/div

SOUND AMP

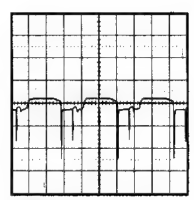


㉒ REC
0.5V 0.5ms/div

DEFLECTION

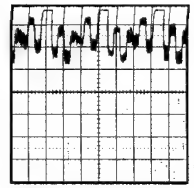


㉓ 20.0V 5ms/div

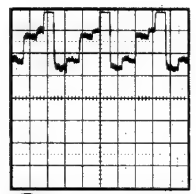


㉔ 5.0V 20μs/div

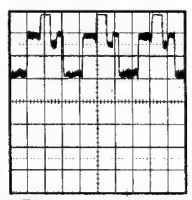
CRT



㉕ 50.0V 20μs/div

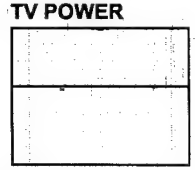


㉖ 50.0V 20μs/div

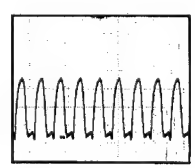


㉗ 50.0V 20μs/div

TV POWER



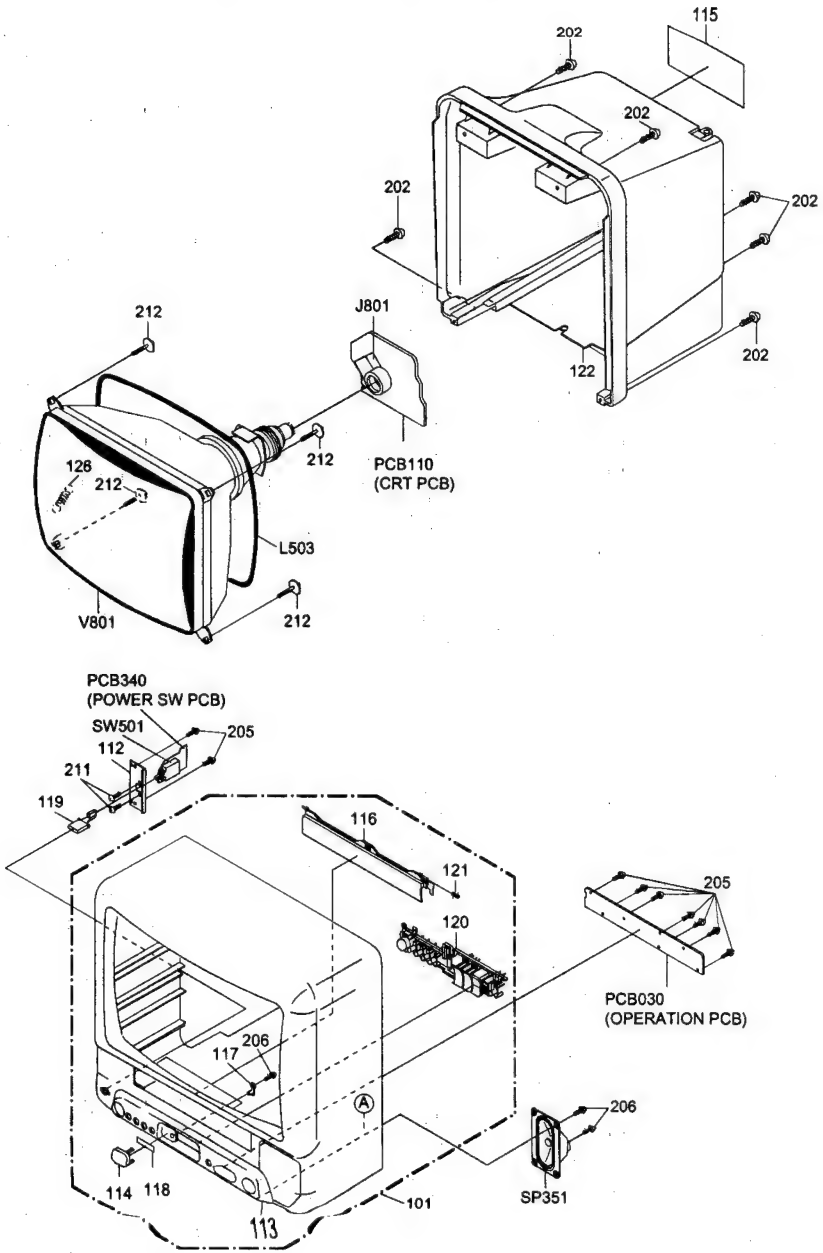
㊿ AV OUT
5V 10ms/div



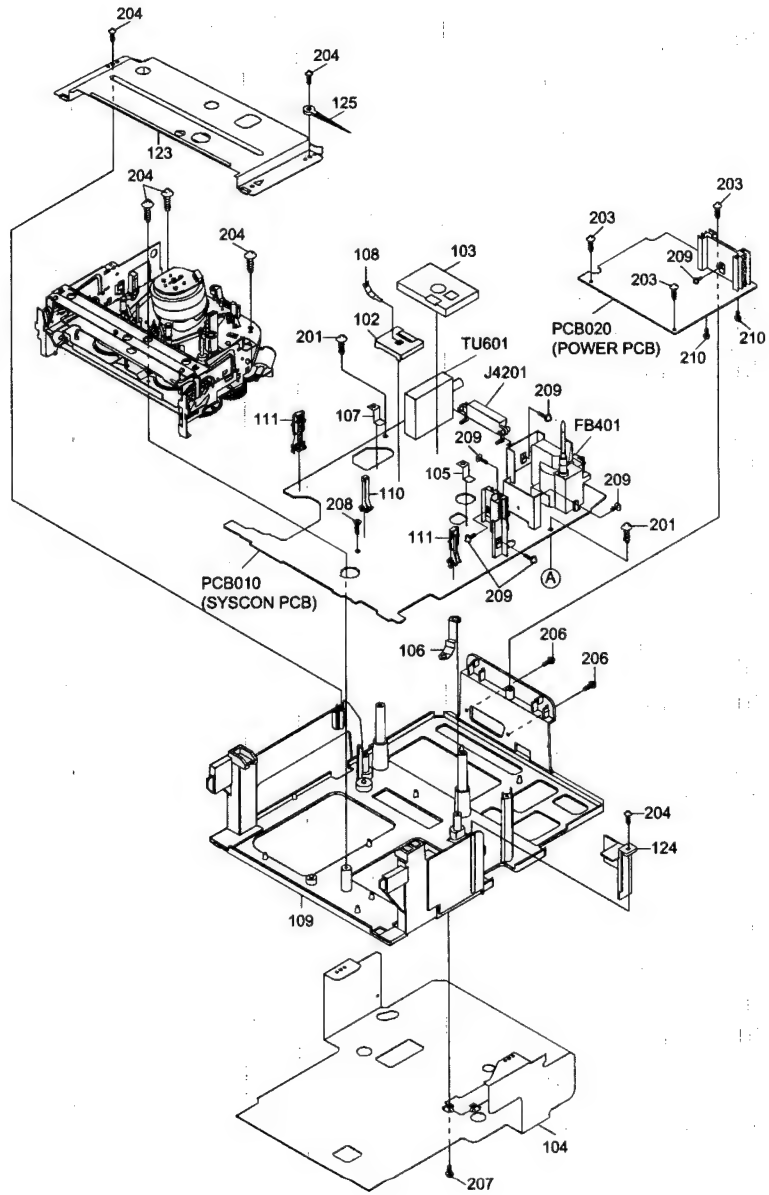
51 AV OUT
5V 10ms/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

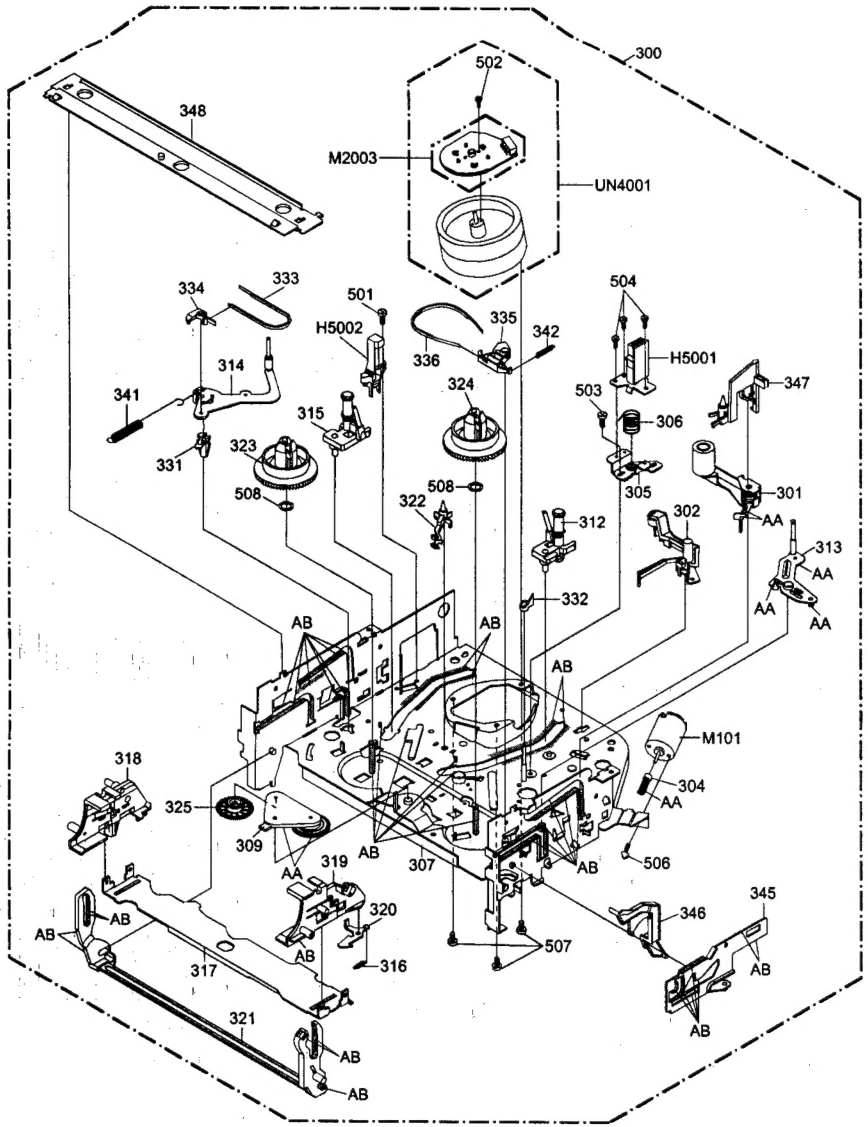
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



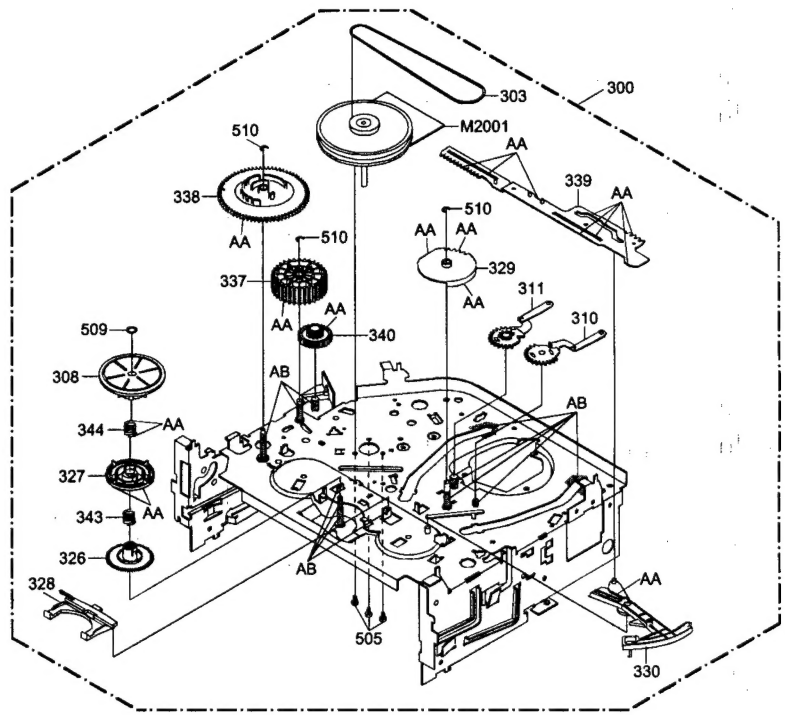
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB

NOTE: Applying positions AA and AB for the grease are displayed for this section.
Check if the correct grease is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB

NOTE: Applying positions AA and AB for the grease are displayed for this section.
Check if the correct grease is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	A5A522N720K	CABINET,FRONT ASS'Y		
102	752WSA0230	SHIELD,CASE HEAD AMP		
103	752WSA0238	SHIELD,CASE		
104	752WSA0245	PLATE,SHIELD BOTTOM		
105	753WSA0118	PLATE,EARTH-SYSCON		
106	753WSA0120	PLATE,BOTTOM-EARTH		
107	753WSA0142	PLATE,EARTH-SYSCON		
108	753WUAA006	SPRING,EARTH HEAD AMP		
109	761WPAA054	HOLDER DECK		
110	85OP700037	HOLDER,LED		
111	85OP700038	HOLDER,END SENSOR		
112	752WSA0259	PLATE,POWER SW		
113	701WPJB484	CABINET,FRONT		
114	711WPDA422	PLATE,FRONT		
115	722568A004	SHEET,RATING		
116	712WPJB236	FLAT,FLAP		
117	713WPA0079	GUIDE,REMOCON		
118	7230006762	SHEET,LED		
119	735WPA0614	BUTTON,POWER		
120	735WPDA507	BUTTON,FRAME		
121	743WKA0032	SPRING,FLAP(COMBO)		
122	702UPA0194	CABINET,BACK		
123	752WSA0240	PLATE,DECK-SHIELD		
124	755WPA0027	PLATE,COVER LIGHT		
125	8995034000	CORD CLIP UL CO.		
126	741WUA0024	SPRING,EARTH		
201	8117540B04	SCREW,TAPPING(B0)	TRUSS	4x20
202	8117540A64	SCREW,TAPPING(B0)	TRUSS	4x16
203	8117540A04	SCREW,TAPPING(B0)	TRUSS	4x10
204	8110630A24	SCREW,TAP TITE(P)	BRAZIER	3x12
205	8110630A04	SCREW,TAP TITE(P)	BRAZIER	3x10
206	8110630804	SCREW,TAP TITE(P)	BRAZIER	3x8
207	8110630604	SCREW,TAP TITE(P)	BRAZIER	3x6
208	8110330804	SCREW,TAP TITE(P)	FLAT	3x8
209	8109I30A04	SCREW,TAP TITE(B)	WH7	3x10
210	8109630802	SCREW,TAP TITE(B)	BRAZIER	3x8
211	810A130504	SCREW/WASHER(A)		M3x5
212	8121F50B84	SCREW,TAPPING(BO)	FAI20 FLAT	5x28
---	JB5X0200	POLYBAG		
---	J5A52201	INSTRUCTION BOOK		
---	J5860702	GUARANTEE CARD		
---	791MHA0002	LAMIFILM BAG		
---	792UHAA011	PACKAGE,TOP		
---	792UHAA012	PACKAGE,BOTTOM		
---	793UCDA858	GIFT BOX		
---	A5A522N975	INSTRUCTION BOOK KIT		

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	
300	A5A518N420A	DECK ASSY A5A518N420A	501	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
			502	810A123504	SEMS A	M2.3x5.0
301	85OA400227	PINCH ROLLER BLOCK	503	8107226404	SCREW,TAP TITE(S) BIND	2.6x4
302	85OA500026	AHC ASS'Y	504	8102120604	SCREW,PAN	M2x6
303	85OP200290	BELT,CAPSTAN (S)	505	8109126604	SCREW,TAP TITE(B) PAN	2.6x6
304	85OP600581	WORM	506	810A130404	SCREW/WASHER(A)	M3x4
305	85OP500083	BASE,AC HEAD	507	810A126504	SCREW/WASHER(A)	M2.6x5
306	85OP800324	SPRING,AC HEAD	508	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13
307	85OA000459	MAIN CHASSIS ASS'Y	509	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
308	85OA200089	CLUTCH ASS'Y				
309	85OA200090	ARM IDLER ASS'Y	510	83ETW30000	E-RING	3
310	85OA300065	LOADING ARM S UNIT	CD1501	122H071603	CORD JUMPER	SMCD-7X151
311	85OA300066	LOADING ARM T UNIT	CD1502	122Y021902	CORD JUMPER	2Y021902
312	85OA400223	INCLINED BASE T UINT 3S	H5001	1523D91034	HEAD (AUDIO CONTROL)	HVMXA1072A
313	85OA400232	P5 ARM ASS'Y 2	H5002	1543D02013	HEAD (FULL ERASE)	HVFHP0032A
314	85OA400233	TENSION ARM ASS'Y (WT)	⚠ M101	1596S98001	MOTOR (LOADING)	MDB2B66
315	85OA400231	INCLINED BASE S UNIT	⚠ M2001	1510S98036	CAPSTAN DD UNIT	F2QVB08
316	85OP800358	SPRING,LOCKER	⚠ M2003	1589S11014	MICRO MOTOR	I2OAL03
317	85OP900736	CASS,HOLDER	⚠ UN4001	A4F310B500	CYLINDER UNIT ASS'Y	A4F310B500
318	85OP900748	CASS,SIDE L				
319	85OP900749	CASS,SIDE R				
320	85OP900739	LOCKER,R				
321	85OA900228	LINK UNIT				
322	85OP000496	POST,CASS GUIDE				
323	85OP200291	REEL,S (S)				
324	85OP200292	REEL,T (S)				
325	85OP200308	GEAR,IDLER				
326	85OP200311	GEAR,CLUTCH				
327	85OP200312	GEAR,COUPLING				
328	85OP200313	LEVER,CLUTCH				
329	85OP300194	GEAR,MAIN LOADING				
330	85OP400490	LEVER,TENSION				
331	85OP400492	HOLDER,TENSION				
332	85OP400520	CAP,P4				
333	85OP400532	BAND,TENSION				
334	85OP400533	CONNECT,TENSION				
335	85OP600573	ARM,BRAKE T				
336	85OP600574	BAND,BRAKE T				
337	85OP600577	CAM,PINCH ROLLER				
338	85OP600578	CAM,MAIN				
339	85OP600579	ROD,MAIN				
340	85OP600582	GEAR,JOINT				
341	85OP800322	SPRING,TENSION				
342	85OP800350	SPRING,BRAKE T				
343	85OP800355	SPRING,COUPLING				
344	85OP800356	SPRING,RING				
345	85OP900743	LEVER,LINK				
346	85OP900744	LEVER,FLAP				
347	85OP900745	CASS,OPENER				
348	85OP900746	BRACKET,TOP 3V				

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS	
⚠ R356	R3X28B3R3J	R,METAL	3.3 OHM 3W
⚠ R430	R3X28B221J	R,METAL	220 OHM 3W
⚠ R447	R65582680J	R,FUSE	68 OHM 1/2W
⚠ R448	R3X181102J	R,METAL OXIDE	1K OHM 1W
⚠ R450	R6558A5R8J	R,FUSE	5.6 OHM 2W
⚠ R501	R5X2CD2R2J	R,CEMENT	2.2 OHM 5W
⚠ R505	R63581R22J	R,FUSE	0.22 OHM 1W
⚠ R538	R034K2155J	RC	1.5M OHM 1/2W
⚠ R542	R3X181R22J	R,METAL OXIDE	0.22 OHM 1W
⚠ R543	R635U4681J	R,FUSE	680 OHM 1/4W
⚠ R802	R3X181153J	R,METAL OXIDE	15K OHM 1W
⚠ R806	R3X181153J	R,METAL OXIDE	15K OHM 1W
⚠ R810	R3X181153J	R,METAL OXIDE	15K OHM 1W
		CAPACITORS	
C357	E02L03102M	CE	1000 UF 25V
C405	E5EZF3222M	CE	2200 UF 25V
C421	E5EZ04102M	CE	1000 UF 35V
C423	P4J7F3334J	CMPP	0.33 UF 250V PMS
C424	P4N8FJ822H	CMPP	0.0082UF 1.25KV or
	P414F9822H	CMPP	0.0082UF 1.6KV ECWH
C450	C03L0R7H2K	CC	220 PF 2KV R
C501	C03L0R7Q2K	CC	470 PF 2KV R
C502	C0HHB07H3K	CC	0.0022UF 2KV B
C503	C0HHB07H3K	CC	0.0022UF 2KV B
⚠ C505	P2472B224M	CMP	0.22UF 275V PHE840
⚠ C506	P2472B104M	CMP	0.1 UF 275V PHE840
C507	E52D0H151M	CE	150 UF 400V
⚠ C510	E02LU4101M	CE	100 UF 35V
C517	C03L0R7B3K	CC	0.0012UF 2KV R
C521	E62NFC221M	CE	220 UF 200V
C523	E5EZF3222M	CE	2200 UF 25V
C524	E5EZF3102M	CE	1000 UF 25V
⚠ C529	CB3930MH3M	CC	0.0022UF 250V
⚠ C530	CB3930M13M	CC	0.001 UF 250V
C531	E5EZF2222M	CE	2200 UF 16V
C535	C03L0R7B3K	CC	0.0012UF 2KV R
C668	E52H02100M	CE	10 UF 16V or
	E50HU2100M	CE	10 UF 16V
C801	C0HHB07H3K	CC	0.0022UF 2KV B
C1003	E51A0P104Z	CE	0.1 F 5.5V
		DIODES	
D403	D2WT011E10	DIODE SILICON	11E1-EIC
D404	D2WT011E10	DIODE SILICON	11E1-EIC
D405	D2WT011E10	DIODE SILICON	11E1-EIC
D406	D2WT011E10	DIODE SILICON	11E1-EIC
D407	D2WT011E10	DIODE SILICON	11E1-EIC
D411	D2WXN49370	DIODE SILICON	1N4937
D413	D2WXN49370	DIODE SILICON	1N4937
⚠ D501	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D502	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D503	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D504	D2WTRM11C0	DIODE SILICON	RM11C-EIC
D505	D2WXB290S0	DIODE SILICON	SB290S
D506	D2WXN49370	DIODE SILICON	1N4937
D508	D2WXRU2AM0	DIODE SILICON	RU2AM-EIC
D509	D2WXB290S0	DIODE SILICON	SB290S
D510	D2WXRU2AM0	DIODE SILICON	RU2AM-EIC
D511	D2WXN49370	DIODE SILICON	1N4937
D512	D2WXB290S0	DIODE SILICON	SB290S
D513	D1VT001330	DIODE SILICON	1SS133T-77
D515	D97U01501B	DIODE,ZENER	MTZJ15B T-77
D518	D1VT001330	DIODE,SILICON	1SS133T-77
D519	D2WXB290S0	DIODE SILICON	SB290S
D520	D2WXSB1400	DIODE SCHOTTKY	SB140-EIC
D521	D1VT001330	DIODE,SILICON	1SS133T-77
D522	D2WXSB1400	DIODE SCHOTTKY	SB140-EIC or
	D23U1003A3	DIODE,SCHOTTKY	SB10-03A3
D523	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D526	D1VT001330	DIODE,SILICON	1SS133T-77
D528	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D533	D1VT001330	DIODE,SILICON	1SS133T-77
D534	D1VT001330	DIODE,SILICON	1SS133T-77
D535	D1VT001330	DIODE,SILICON	1SS133T-77
D601	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D602	D2WT011E10	DIODE SILICON	11E1-EIC
D603	D2WT011E10	DIODE SILICON	11E1-EIC
D609	D1VT001330	DIODE,SILICON	1SS133T-77

REF. NO.	PART NO.	DESCRIPTION	
		DIODES	
D610	D1VT001330	DIODE,SILICON	1SS133T-77
D611	D1VT001330	DIODE,SILICON	1SS133T-77
D791	0021E2Q150	LED	LTL-4224-031A
D793	0021E2Q150	LED	LTL-4224-031A
D794	0021E2Q150	LED	LTL-4224-031A
D1001	D1VTB721Q0	DIODE SCHOTTKY	RB721Q-40 T-77
D1002	D2WT011E10	DIODE SILICON	11E1-EIC
D1003	0010100320	INFRARED LED	LNA2702L010R
D1004	D1VT001330	DIODE,SILICON	1SS133T-77
D1006	D2WXSB1400	DIODE SCHOTTKY	SB140-EIC
D1010	D2WXSB1400	DIODE SCHOTTKY	SB140-EIC
D1021	D1VT001330	DIODE,SILICON	1SS133T-77
D1201	D1VT001330	DIODE,SILICON	1SS133T-77
D1202	D2WT011E10	DIODE SILICON	11E1-EIC
D1252	D1VT001330	DIODE,SILICON	1SS133T-77
D1261	D1VT001330	DIODE,SILICON	1SS133T-77
D4001	D23U1003A3	DIODE,SCHOTTKY	SB10-03A3
D4210	D1VT001330	DIODE,SILICON	1SS133T-77
		ICS	
IC352	I0FSP75230	IC	AN7523
IC401	I0WTD81740	IC	TDA8174A
⚠ IC502	I2BTG66530	IC	STR-G6653
⚠ IC506	0002E00610	PHOTO COUPLER	LTV-817M-VB
IC601	I0WDE246C0	IC	STV2246C
IC1001	I1KA97805A	IC	KIA7805API
IC1003	IC7J0311A0	IC	R3111N311A/C-TR
IC1004	I1KA98R050	IC	KIA78R05PI
IC1005	I1KA98R050	IC	KIA78R05PI
IC1006	I54F50108A	IC	OEC0108A
IC1007	I1KA98R09A	IC	KIA78R09API
IC1099	A5A522N015	IC	S-24C08A0PA-01
IC1201	ICKF0008B0	IC	ET-TVT008B
IC1202	I0UF012310	IC	MM1231XF
IC4001	I04F38217F	IC	HA118217F
		TRANSISTORS	
Q351	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q403	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q405	TC5T01627Y	TRANSISTOR SILICON	2SC1627_Y(TPE2)
Q406	TD30026270	TRANSISTOR SILICON	2SD2627LS-CBC11
Q507	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q601	TPAAB05001	COMPOUND TRANSISTOR	KRA102SRTK
Q602	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q607	TC3T030000	TRANSISTOR,SILICON	2SC3000-AA
Q608	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q611	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
⚠ Q804	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
⚠ Q805	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
⚠ Q806	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
Q1001	0002700590	PHOTO COUPLER	RPI-301
Q1002	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q1003	0002700670	PHOTO COUPLER	RPI-352Q02
Q1004	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q1005	0002700590	PHOTO COUPLER	RPI-301
Q1006	0000M00390	PHOTO TRANSISTOR	ST-304L
Q1007	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q1009	0002700670	PHOTO COUPLER	RPI-352Q02
Q1010	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
Q1015	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q1016	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q1017	0000M00390	PHOTO TRANSISTOR	ST-304L
Q1101	TDAT00863Y	TRANSISTOR SILICON	KTD863_Y-AT or
	TDWT00400E	TRANSISTOR SILICON	2SD400E
Q1104	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q1253	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q1262	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4001	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q4002	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q4003	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
Q4004	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q4005	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q4006	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4007	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4015	TNAAD05001	COMPOUND TRANSISTOR	KRC104SRTK
Q4018	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4202	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4203	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4205	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		TRANSISTORS	
Q4207	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4210	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
		COILS &TRANSFORMERS	
L401	021679472K	COIL	4.7 MH
L402	0221000013	COIL,LINEARITY	ELH5L4112N
⚠ L501	029T0000A1	COIL,LINE FILTER	0R7A223F24 or
	029K000001	COIL,LINE FILTER	RB-20871
⚠ L502	029T000092	COIL,LINE FILTER	1R0A103F24
⚠ L503	028R140018	COIL,DEGAUSS	8R140018
L602	021375101K	COIL	100 UH
L603	021A6680K	COIL	68 UH
L604	021673101K	COIL	100 UH
L605	0216S12R2J	COIL	2.2 UH
L606	021LA62R2K	COIL	2.2 UH
L607	021LA6R27M	COIL	0.27 UH
L608	021LA6120K	COIL	12 UH
L610	021673101K	COIL	100 UH
L611	021673101K	COIL	100 UH
L612	033700005R	COIL,VIDEO IFT	3700005
L613	02167F101J	COIL	100 UH
L614	021LA61R0M	COIL	1 UH
L801	021673221K	COIL	220 UH
L1001	021LA6120K	COIL	12 UH
L1202	02167F100J	COIL	10 UH
L1203	02167F100J	COIL	10 UH
L1204	02167F101J	COIL	100 UH
L4001	0326230038	COIL,TRAP	2623003
L4002	02167F101J	COIL	100 UH
L4003	021375101K	COIL	100 UH
L4004	02167F101J	COIL	100 UH or
	02167B101K	COIL	100 UH
L4005	0316260088	COIL,BIAS OSC	1626008
L4008	021673102K	COIL	1 MH
L4009	021375101K	COIL	100 UH
L4011	021LA6120K	COIL	12 UH
L4012	021LA6221K	COIL	220 UH
L4013	021673101J	COIL	100 UH
L4015	021375101K	COIL	100 UH
L4016	021LA6390K	COIL	39 UH
L4024	021LA6100K	COIL	10 UH
L4025	021LA6100K	COIL	10 UH
L4026	021LA6100K	COIL	10 UH
L4202	021673101K	COIL	100 UH
L4203	021LA6100K	COIL	10 UH
L4204	021LA6100K	COIL	10 UH
T401	045009003J	TRANS,HORIZONTAL DRIVE	ETH09K14BZ
⚠ T501	0481290794	TRANSFORMER,SWITCHING	81290794
		JACKS	
J351	060G131014	RCA JACK	HTJ-035-28A
J701	060Q401075	RCA JACK	AV2-24D-5 or
	0602101020	JACK,RCA	JPJ3811-01-430
⚠ J801	066X120014	SOCKET,CATHODE RAY TUBE	HPS3200-010501
J4201	063G100042	SOCKET,21PIN	0350_9982_05
		SWITCHES	
⚠ SW501	0530205017	SWITCH	SDKVA30200
SW751	0504101T34	SWITCH,TACT	EVQ21505R or
	0504201T31	SWITCH,TACT	SKHVBED010
SW791	0504101T34	SWITCH,TACT	EVQ21505R or
	0504201T31	SWITCH,TACT	SKHVBED010
SW792	0504101T34	SWITCH,TACT	EVQ21505R or
	0504201T31	SWITCH,TACT	SKHVBED010
SW793	0504101T34	SWITCH,TACT	EVQ21505R or
	0504201T31	SWITCH,TACT	SKHVBED010
SW794	0504101T34	SWITCH,TACT	EVQ21505R or
	0504201T31	SWITCH,TACT	SKHVBED010
SW795	0504101T34	SWITCH,TACT	EVQ21505R or
	0504201T31	SWITCH,TACT	SKHVBED010
SW796	0504101T34	SWITCH,TACT	EVQ21505R or
	0504201T31	SWITCH,TACT	SKHVBED010
SW797	0504101T34	SWITCH,TACT	EVQ21505R or
	0504201T31	SWITCH,TACT	SKHVBED010
SW798	0504101T34	SWITCH,TACT	EVQ21505R or
	0504201T31	SWITCH,TACT	SKHVBED010
SW799	0504101T34	SWITCH,TACT	EVQ21505R or
	0504201T31	SWITCH,TACT	SKHVBED010
SW1001	0508A11002	SWITCH(LEAF)	MXS01380MPP0

REF. NO.	PART NO.	DESCRIPTION	
		VARIABLE RESISTORS	
VR401	V1262Q2BT2	VOLUME,SEMI FIXED	RH0684CS2R
VR402	V1262H38T2	VOLUME,SEMI FIXED	RH0684CJ3R
VR502	V1163Q2BTC	VOLUME,SEMI FIXED	EVNCYAA03BQ2
		P.C.BOARD ASSEMBLIES	
PCB010	A5A522N010K	PCB ASS'Y	VMA230A
PCB020	A5A520N020K	PCB ASS'Y	VPA150A
PCB030	A5A522N030K	PCB ASS'Y	TE9962B
PCB110	A5A522N110K	PCB ASS'Y	TCA375A
PCB340	A5A522N340K	PCB ASS'Y	TEAA79A
		MISCELLANEOUS	
B401	024HT03564	CORE,BEADS	W4BRH3.5X6X1
B501	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B502	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B505	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B701	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B702	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B703	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B4001	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B4201	024HT03564	CORE,BEADS	W4BRH3.5X6X1
B4202	024HT03564	CORE,BEADS	W4BRH3.5X6X1
BT101	1412004013	BATTERY,MANGAN	R03(AB)2PXGPI
BT102	1412004013	BATTERY,MANGAN	R03(AB)2PXGPI
CD351	06CU272502	CORD CONNECTOR	CU272502
CD352	06CU121701	CORD CONNECTOR	CU121701
CD401	06CU251201	CORD CONNECTOR	CU251201
⚠ CD501	1206459803	CORD AC BUSH	06459803
CD502	06CUU23001	CORD CONNECTOR	CUU23001
CD757	06CU292502	CORD CONNECTOR	CU292502
CD801	1278140025	BRAIDED WIRE	SM1250-001
CD851	06CU2B1201	CORD CONNECTOR	CU2B1201
CD852	WDL6036038	FLAT CABLE	AWG26 6C BLACK 360MM
CD853	WBL6028038	FLAT CABEL	AWG26 4C BLACK 280MM
CF601	1022T38R9E	FILTER,SAW	SAF38.9MAK220Z
CF604	1012T04001	FILTER,CERAMIC TRAP	MKT40.4MA110P-TF
CF605	1012T5R503	FILTER,CERAMIC TRAP	TPS5.5MB-TF21
CP351	069S270639	CONNECTOR PCB SIDE	A2001WR2-7P
CP402	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P
CP501	069S320419	CONNECTOR PCB SIDE	A3963WV2-3PD
CP502	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP603	069X180379	CONNECTOR PCB SIDE	06JQ-ST
CP757	069S290639	CONNECTOR PCB SIDE	A2001WR2-9P
CP801	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CD4005	122S061401	CORD JUMPER	1.25X6X138XC
CP1001	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2
CP4001	0697240600	CONNECTOR PCB SIDE	TOC-C04X-B1
CP4004	0697120320	CONNECTOR PCB SIDE	TMC-T02X-E1
CP4005	069J760029	CONNECTOR PCB SIDE	IMSA-9804S-06Z14
CP401A	069S250629	CONNECTOR PCB SIDE	A2001WV2-5P
CP401B	067U005049	WIRE HOLDER	B2013H02-5P
CP851A	069S2B0629	CONNECTOR PCB SIDE	A2001WV2-11P
CP851B	067U011029	WIRE HOLDER	B2013H02-11P
CP852A	067U006049	WIRE HOLDER	B2013H02-6P
CP852B	067U006049	WIRE HOLDER	B2013H02-6P
CP853A	067U004029	WIRE HOLDER	B2013H02-4P
CP853B	067U004029	WIRE HOLDER	B2013H02-4P
CUS011	800WFAA006	CUSHION A	
CUS011	800WFAA007	CUSHION B	
CUS012	800WFAA008	CUSHION C	
EL001	124120301A	EYE LET	XRY20X30BD
⚠ F501	080NT04003	FUSE	50T040HCC
⚠ FB401	043214033F	TRANSFORMER,FLYBACK	FQI-14B001
FH501	06710T0006	HOLDER,FUSE	EYF-52BC
FH502	06710T0006	HOLDER,FUSE	EYF-52BC
OS753	077Q037002	REMOTE RECEIVER	PIC-37143TH5
⚠ SP351	070C533019	SPEAKER	SG04D11BNA or
	070W535002	SPEAKER	NF-16D27W
⚠ TH501	D8E080B100	DEGAUSS ELEMENT	B59104-T80-B10
TM101	076R0CH030	TRANSMITTER	R25-1714
⚠ TU801	0145511023	TUNER,VHF-UHF	TUWRF4EG-775F2
⚠ V801	098Q1404B6	CRT W/DY	A34AGT13*07(L)
X601	100CT4R408	CRYSTAL HC-49/U	4.433619MHz
X1001	100CT01002	CRYSTAL HC-49/U-S	10MHz
X1002	100DA32R01	CRYSTAL DT-26	32.768KHz
X1201	100CT01302	CRYSTAL HC-49/U-S	13875KHz
X4001	100CT4R407	CRYSTAL HC-49/U	4.433619MHz

ELECTRICAL REPLACEMENT PARTS LIST

RESISTOR

RC.....	CARBON RESISTOR

CAPACITORS

CC.....	CERAMIC CAPACITOR
CE.....	ALUMI ELECTROLYTIC CAPACITOR
CP.....	POLYESTER CAPACITOR
CPP.....	POLYPROPYLENE CAPACITOR
CPL.....	PLASTIC CAPACITOR
CMP.....	METAL POLYESTER CAPACITOR
CMPL.....	METAL PLASTIC CAPACITOR
CMPP.....	METAL POLYPROPYLENE CAPACITOR

SPEC.NO.	M5A5-22N
O/R NO.	U1Y5502